



U.S. Department  
of Transportation  
Federal Aviation  
Administration

# FAA Statistical Handbook of Aviation

AD-A220 198

Calendar Year 1988

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*FAA Statistical Handbook of Aviation* is a convenient source for historical data. It presents statistical information pertaining to the Federal Aviation Administration, the National Airspace System, Airports, Airport Activity, U.S. Civil Air Carrier Fleet, U.S. Civil Air Carrier Operating Data Airmen, General Aviation Aircraft, Aircraft Accidents, Aeronautical Production & Import/Export.

Reporting period:	Calendar Year
Latest edition:	1988 data
Order from:	U.S. Government Printing Office or National Technical Information Service
Date 1989 information will be available:	Various
Date next publication is scheduled:	November 1990 (1989 data)
Person to contact:	Patricia Beardsley

*U.S. Civil Airmen Statistics* is an annual study of detailed airmen statistics. It contains calendar year statistics on pilot and nonpilots and the number of certificates issued.

Reporting period:	Calendar Year
Latest edition:	1988
Order from:	Management Standards & Statistics Division or National Technical Information Service
Date 1989 information is available:	February 1990
Date next publication is scheduled:	March 1990 (1989 data)
Person to contact:	Patricia Carter

*Census of U.S. Civil Aircraft* is an annual publication that includes statistical data on the registered civil fleet, air carrier aircraft, and general aviation aircraft—both registered and active, detailed reports for general aviation aircraft by owner's state and county, and registered aircraft by make and model.

Reporting period:	Calendar Year
Latest edition:	1988 data
Order from:	U.S. Government Printing Office, or National Technical Information Service
Date 1989 Information will be available:	May 1990
Date next publication is scheduled:	August 1990 (1989 data)
Person to contact:	Patricia Beardsley

*FAA Air Traffic Activity* furnishes terminal and en route air traffic activity information (e.g., takeoffs & landings, flight plans filed) of the National Airspace System. The data is collected/compiled from the FAA-operated Airport Traffic

Control Towers, Air Route Traffic Control Centers, Flight Service Stations, Approach Control Facilities, and FAA Contract-towered airports.

Reporting period:	Fiscal Year
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Date 1989 information will be available:	April 1990
Date next publication is scheduled:	May 1990 (1989 data)
Person to contact:	Nancy Trembley

*General Aviation Activity and Avionics Survey* publication presents the results of the general aviation activity and avionics survey conducted to obtain information on the activity and avionics of the U.S. registered general aviation aircraft fleet. The survey reveals estimated flying time of the active general aviation aircraft, and other statistics by manufacturer/model group, aircraft type, state and region of based aircraft, and primary use. Estimates are included on fuel consumption, lifetime airframe hours, avionics, and engine hours.

Reporting period:	Calendar Year
Latest edition:	1988 data
Order from:	Government Printing Office or National Technical Information Service
Date 1989 Information will be available:	November 1990
Date next publication is available:	December 1990 (1989 data)
Person to contact:	Shung-Chai Huang

*FAA Directory* is usually published twice a year, it contains six sections of data: Washington/Region/Center headquarters' managers; field facilities' managers/ supervisors; regional area maps/organizational charts; alphabetical listing; special interest groups; and glossary.

Latest edition:	October 1989
Order from:	U.S. Government Printing Office
Date next publication is scheduled:	May 1990
Person to contact:	Alfredia Brooks

*Airport: Activity Statistics of Certificated Route Air Carriers* is a joint publication of the Federal Aviation Administration (FAA) and the Research & Special Programs Administration (RSPA). RSPA furnishes airport activity data on certificated route air carriers; FAA organizes/publishes it. Included in the data are passenger enplanements, tons of enplaned freight, express and mail. Both scheduled/nonscheduled service and domestic/international operations shown by airport and carrier are also included. Breakdown of data includes departures/ enplanements/cargo/mail by airport, carrier & type of operation, and type of aircraft.

Reporting period:	Calendar Year
Latest edition:	1988 data
Order from:	Government Printing Office or National Technical Information Service
Date 1989 Information will be available:	September 1990
Date next publication is available:	November 1990 (1989 data)
Person to contact:	Patricia Beardsley

## PREFACE

The FAA Statistical Handbook of Aviation is published annually by the Federal Aviation Administration (FAA). Its prime purpose is to serve as a convenient source for historical data and to assist in evaluating progress.

The Handbook should provide a valuable source of information for the Department of Transportation (DOT), operating offices of the FAA, the Research and Special Programs Administration (RSPA), and other government agencies, as well as nongovernment organizations interested in aviation.

Chapter I deals with the FAA and its functions. This section also includes a comparison of the agency's appropriations and the agency's personnel complement.

National Airspace System data reflecting the fiscal and calendar year workload of the FAA air traffic facilities—terminal and en route—are contained in Chapter II. This chapter contains air traffic activity reported by FAA-operated airport traffic control towers, air route traffic control centers, and domestic and international flight service stations.

Selected statistics concerning the Nation's airport facilities are presented in Chapter III by state within FAA regions. In addition to the total count of these facilities, this chapter includes statistics pertaining to the physical characteristics (paved vs. unpaved runways, lighted vs. unlighted runways, length of runways, etc.), and funds allocated for airport development.

Airline passenger, cargo, and freight statistics shown in Chapter IV were prepared from data published in Airport Activity Statistics of Certificated Route Air Carriers, which is issued jointly by the RSPA and the FAA. This chapter covers the activity of the large scheduled certificated air carriers only.

The U.S. civil air carrier fleet is described in detail in Chapter V. These statistics were developed from monthly Aircraft/Engine Utilization Reports submitted by the air carrier operators. The aircraft population discussed here is not an inventory of the aircraft owned by the air carriers, but represents the aircraft reported in air carrier use during the last quarter of the year.

U.S. civil air carrier operating data—revenue passenger miles flown, available seat-miles, enplanements, revenue ton-miles flown, revenue aircraft miles flown, and operating revenues and expenses of the large certificated air carriers—are presented in Chapter VI. These statistics were obtained from forms submitted by the large certificated route air carriers to the RSPA. Also included in Chapter VI are traffic statistics for the small certificated and commuter air carriers.

The airmen data shown in Chapter VII were obtained from official airmen certification records maintained by the FAA's Mike Monroney Aeronautical Center in Oklahoma City, Oklahoma. These data included the number of airmen as of the end of each year and the number of certificates issued during the year.

**KEYWORDS:** Federal Aviation Administration, Air Transportation, Civil Aviation,

The general aviation aircraft data presented in Chapter VIII were collected from the General Aviation Activity and Avionics Survey. Numbers of active aircraft and hours flown are shown for each aircraft type, use category and state.

Aircraft accidents, air carrier, commuters, air taxis, and general aviation, appear in Chapter IX. These data were furnished by the National Transportation Safety Board (NTSB).

Aeronautical production and imports/exports are summarized in Chapter X. The production information was obtained from reports submitted to the U.S. Bureau of the Census by all known producers of complete aircraft and aircraft engines. Import/export data were obtained through Aerospace Industries Association, Inc. based on Bureau of the Census data from special monthly compilation of annual reports FT-446 and FT-410, respectively.

The FAA Statistical Handbook of Aviation is prepared by the Statistical Analysis Branch, Management Standards and Statistics Division, Office of Management Systems, with the cooperation of other FAA offices. Special appreciation is expressed to the Research and Special Programs Administration, U.S. Bureau of the Census, the National Transportation Safety Board, and many municipalities and private organizations for their assistance.

**KEYWORDS:** Commercial Aviation, National Airspace System, Air Traffic Facilities, Airport (over) facilities, Airline Passenger, CARGO, FLIGHT, U.S. Civil Air Carrier, CIVIL Aviation, Aircraft accidents, air carrier, commuters, air taxis, (back)

→ cont.  
Aeronautical Production, Imports/Exports, Research and Special

↳ Programs (RSPA)



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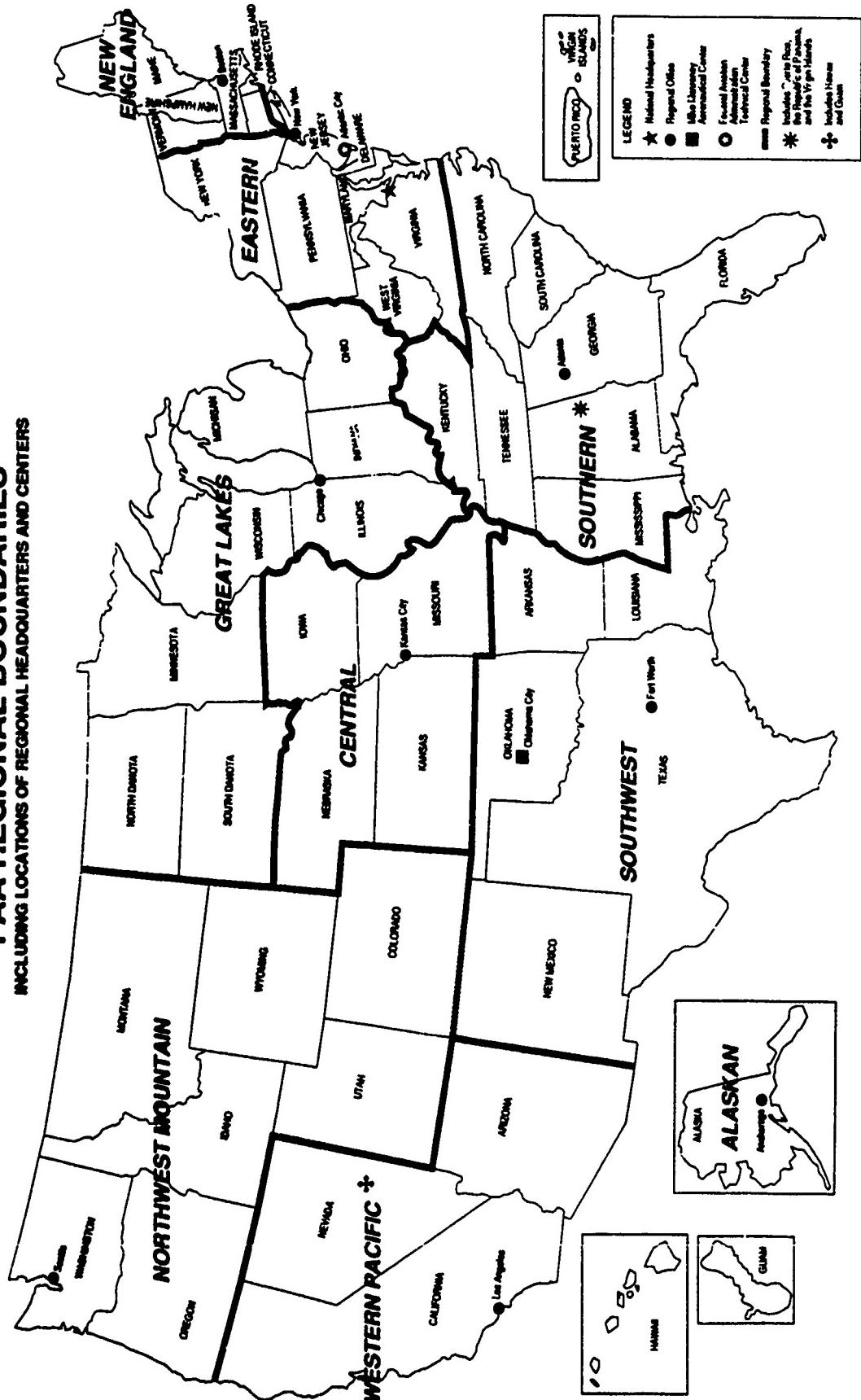
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## FAA REGIONAL BOUNDARIES

INCLUDING LOCATIONS OF REGIONAL HEADQUARTERS AND CENTERS



## I. THE FEDERAL AVIATION ADMINISTRATION

The Department of Transportation Act of 1966 established a new executive department known as the Department of Transportation. The general welfare, economic growth, stability, and security of the nation pointed to the need for the development of national transportation policies and programs effectively using the nation's transportation resources. The Act provided for inclusion of the Federal Aviation Agency in the Department as the Federal Aviation Administration.

Directed by an Administrator, who is appointed by the President, by and with the advice and consent of the Senate, the FAA has as its primary function the fostering of the development and safety of American aviation. More specifically, the FAA is responsible for developing the major policies necessary to guide the long-range growth of civil aviation; modernizing the air traffic control system; establishing in a single authority the essential management functions necessary to support the common needs of civil and military operations; providing for the most effective and efficient use of the airspace over the United States; and for the rulemaking responsibilities relative to these functions.

The FAA constructs, operates, and maintains the National Airspace System and the facilities which are a part of the system; it allocates and regulates the use of the airspace; it ensures adequate separation between aircraft operating in controlled airspace; and, through research and development programs, it provides new systems and equipment for improving utilization of the nation's airspace.

The Federal Aid to Airports Program (FAAP) authorized the FAA to make grants of federal funds to sponsors for airport development and for advanced planning and engineering. Under FAAP, approximately \$1.2 billion were granted by FAA to airport sponsors for airport development purposes from 1947 through 1970. FAAP was superseded by the Airport Development Act of 1970, the Airport and Airway Improvement Act of 1982, and the Airport and Airway Safety and Capacity Expansion Act of 1987 which amended the Airport and Airway Improvement Act of 1982.

The FAA prescribes and administers rules and regulations concerning airmen competency, aircraft airworthiness, and air traffic control. It promotes safety through certification of airmen, aircraft, and flight and aircraft maintenance schools. It reviews the design, structure, and performance of new aircraft to insure the safety of the flying public.

Services provided by FAA toward the development of aviation and air commerce include:

Dissemination of news and information on civil aviation generally.

Publication of flight information data for pilots.

Technical aviation assistance to other governments, operation of overseas civil aviation missions, and the aviation training of foreign nationals.

Development of medical standards for airmen through aviation medical research.

Research and development in the field of aeronautics and electronics.

Other activities required to encourage and foster the worldwide development of civil aviation and air commerce.

Policies governing these programs are developed in the Washington headquarters of FAA, and are executed by field employees.

The FAA has nine regional offices strategically located throughout the United States as well as the FAA Technical Center at Atlantic City, New Jersey, and the Mike Monroney Aeronautical Center at Oklahoma City, Oklahoma.

**TABLE 1.1**  
**FAA BUDGET AUTHORITY FISCAL YEARS 1985 - 1989 (\$ In Millions)**

Appropriation	1985	1985	1987	1988	1989
Total	5,355.8	4,869.3	4,946.1	6,147.0	6,589.7
Operations (General Fund)	1,589.4	2,237.4	2,302.8	2,322.6	2,974.2
Operations (Airport and Airway Trust Fund)	1,110.0	426.8	621.2	827.4	471.3
Headquarters Administration	0.0 <sup>a</sup>	60.3	35.1	35.5	0.0 <sup>c</sup>
Facilities and Equipment (Airport and Airway Trust Fund)	1,358.0	895.1	804.6	1,108.1	1,384.2
Grants-in-Aid for Airports (Airport and Airway Trust Fund) Contract Authority (Obligation Limitation)	987.0 (925.0)	973.3 (885.2)	1,017.2 (1,025.0)	1,688.0 (1,268.7)	1,600.0 <sup>b</sup> (1,400.0)
Research, Engineering and Development (Airport and Airway Trust Fund)	265.0	237.1	141.7	153.4	160.0
Metropolitan Washington Airports	46.4	39.3	23.5 <sup>b</sup>	0.0 <sup>b</sup>	0.0 <sup>b</sup>

<sup>a</sup> Headquarters Administration included in the Operations appropriation in fiscal year 1985.

<sup>b</sup> Metropolitan Washington Airports transferred to Regional Authority, June 1987.

<sup>c</sup> Headquarters Administration included in the Operations appropriation in fiscal year 1989.

<sup>d</sup> Revised

**TABLE 1.2**  
**FAA CIVILIAN EMPLOYEES AT END OF FISCAL AND CALENDAR YEARS 1979 - 1988 (See Note Below)**

Date	Full Time Permanent				
	FAA Total Paid	Washington Office	Washington Field*	Other Field	Total
9/79.....	56,435	2,124	888	51,432	54,444
12/79.....	56,394	2,144	922	51,498	54,564
9/80.....	55,361	2,060	918	50,560	53,538
12/80....	55,340	2,069	942	50,500	53,511
9/81.....	42,590	1,951	185	39,123	41,259
12/81.....	44,640	1,940	190	40,378	42,508
9/82.....	46,511	1,868	173	42,929	44,970
12/82.....	46,897	1,866	168	43,415	45,449
9/83.....	46,922	1,906	155	45,317	45,317
12/83.....	46,993	1,911	144	43,266	45,321
9/84.....	47,216	1,943	116	43,733	45,792
12/84.....	47,178	1,959	130	43,810	45,899
9/85.....	47,138	2,012	132	43,651	45,795
12/85.....	47,245	2,033	136	43,660	45,829
9/86.....	46,682	2,022	140	43,477	45,639
12/86.....	46,809	2,050	144	43,438	45,632
9/87.....	47,897	2,142	152	44,204	46,498
12/87.....	47,907	2,156	157	44,148	46,461
9/88.....	49,002	2,267	159	45,119	47,545
12/88.....	49,210	2,315	158	45,237	47,710

\* Beginning with 1981 employees from National and Dulles Airports are reported under "Other Field". In 1987, these employees were transferred to the Regional Authority.

NOTE: FAA Total Paid includes full-time, part-time, and intermittent. Full-time includes permanent paid full-time employees who occupy permanent positions. Washington Office includes all paid Washington headquarters employees whose duty station is Washington, D.C. Washington Field includes all paid Washington, D.C. employees in other states, or foreign countries. Other Field includes all paid employees whose duty stations are in the regions or centers.

**TABLE 1.3**  
**NUMBER OF TOTAL PAID FAA EMPLOYEES AS OF DECEMBER 31, 1979 - 1988**

Occupation	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Air Traffic Control Specialists	27,783	27,190	17,418	20,906	21,271	21,759	22,114	22,036	22,651	23,520
Electronics Technicians	9,209	8,871	8,432	8,031	7,633	7,229	6,856	6,600	6,788	6,627
Aviation Safety Inspectors	2,016	2,038	1,942	1,835	1,805	1,945	1,897	2,204	2,350	2,499
Engineers	2,501	2,436	2,274	2,238	2,313	2,419	2,450	2,417	2,579	2,640
All Others	14,885	14,805	14,574	13,887	13,971	13,826	13,928	13,552	13,539	13,924
Total Employment	56,394	55,340	44,640	46,897	46,993	47,178	47,245	46,809	47,907	49,210

## **II. THE NATIONAL AIRSPACE SYSTEM**

This chapter furnishes terminal and en route air traffic activity information for the National Airspace System for fiscal and calendar years. The data have been reported by the FAA-operated Airport Traffic Control Towers, Air Route Traffic Control Centers, and flight service facilities (Flight Service Stations, Automated Flight Service Stations and International Flight Service Stations). These reports are used as a guide in determining the need for larger or additional facilities, and possible changes in the number of personnel at existing facilities.

Terminal information includes airport operations, instrument operations, and instrument approaches. Airport operations are landings and takeoffs. They are reported by towers by aviation categories—air carrier, air taxi, general aviation, and military. Instrument operations are takeoffs, landings, and overflights of aircraft operating in accordance with an IFR flight plan. Instrument approaches are approaches made to an airport by an aircraft on an IFR flight plan under IFR weather conditions.

Data for Air Route Traffic Control Centers (ARTCCs) include departures, overflights, and aircraft handled.

Activities for Flight Service Stations, Automated Flight Service Stations and International Flight Service Stations include flight plans originated, airport advisories, pilot briefs, and aircraft contacted.

More detailed data pertaining to activity of these facilities may be found in *FAA Air Traffic Activity*.

**TABLE 2.1 \***  
**U.S. AIR ROUTE AIRWAY MILEAGE: 1979 - 1988 (Contiguous 48 States)**

December 31	Very High Frequency VOR/VORTAC		
	Low Altitude		Jet Routes
	Direct	Alternate	
1979.....	157,853	31,625	135,920
1980.....	159,008	31,409	137,503
1981.....	160,823	29,137	138,550
1982.....	167,637	20,067	138,438
1983.....	169,471	15,359	139,477
1984.....	171,873	12,188	141,199
1985.....	182,182	3,306	142,658
1986.....	184,229	905	146,869
1987.....	184,644	543	147,678
1988.....	185,166	543	149,057

\* Mileage shown in nautical miles based on National Ocean Survey figures.

**TABLE 2.2**  
**FAA AIR ROUTE FACILITIES AND SERVICES: 1979 - 1988**

December 31	VOR/ VORTAC	Nondirectional Radio Beacons	Air Route Traffic Control Centers	Airport Traffic Control Towers	Flight Service Stations	International Flight Service Stations	Instrument Landing Systems	Radar Equipment
1979 .....	1,028	1,015	25	499	318	6	753	192
1980 .....	1,037	1,055	25	502	317	6	796	192
1981 .....	1,033	1,123	25	501	316	6	840	199
1982 .....	1,029	1,143	25	492	316	6	884	197
1983 .....	1,032	1,183	25	494	316	5	934	197
1984 .....	1,035	1,211	25	497	310	5	955	197
1985 .....	1,039	1,222	25	500	302	4	968	198
1986 .....	1,043	1,239	25	686	293	3	977	312
1987 .....	1,045	1,262	25	686	253	3	1,111	312
1988 .....	1,043 *	1,287 b	24 c	692 d	220	3	1,130 *	311 e

- \* Includes 73 nonfederal and 37 military.
- \*\* Includes 913 nonfederal and 67 military.
- † Includes 3 combined center/radar approach control facilities (CERAP).
- ‡ Includes 64 nonfederal and 211 military.
- § Includes 22 Landing Directional Aids (LDA), 129 nonfederal, 20 military, 180 partial, 7 Interim Microwave Landing Systems (ISMLS), and 36 Simplified Direction Finders (SDF).
- ¶ Includes FAA, military and non federal

**FISCAL YEARS**  
**(TABLES 2.3 – 2.10)**

**TABLE 2.3**  
AIR TRAFFIC ACTIVITY AT AIR ROUTE TRAFFIC CONTROL CENTERS, BY AVIATION CATEGORY FISCAL YEARS 1984 - 1988

	Year	Aircraft Handled						General Aviation Annual Change	Military Annual Change		
		Total		Air Carrier		Air Taxi					
		Total	Annual Change	Total	Annual Change	Total	Annual Change				
<b>IFR Aircraft Handled</b>											
1988	36,350,374	+2%	17,885,839	+5%	5,834,717	+10%	8,053,133	-1%	4,576,665 +14%		
1987	35,794,403	+5%	17,115,080	+7%	5,283,267	+5%	8,102,631	+1%	5,293,425 +4%		
1986	34,177,045	+4%	16,009,336	+9%	5,020,069	+5%	8,054,741	-3%	5,092,895 +3%		
1985	32,708,709	+4%	14,627,050	+4%	4,795,199	+10%	8,329,512	+1%	4,956,945 +2%		
1984	31,615,486	+8%	14,110,639	+6%	4,369,149	+18%	8,267,069	+6%	4,868,609 +7%		
<b>IFR Departures</b>											
1988	13,803,103	+	6,146,443	+2%	2,741,782	+12%	3,355,842	-1%	1,559,036 -17%		
1987	13,768,267	+4%	6,043,020	+6%	2,458,714	+5%	3,392,926	-	1,873,607 +5%		
1986	13,245,340	+4%	5,719,626	+9%	2,335,006	+5%	3,398,856	-4%	1,791,852 +2%		
1985	12,784,292	+4%	5,261,858	+5%	2,232,782	+9%	3,535,541	+1%	1,754,111 +2%		
1984	12,290,214	+9%	5,036,352	+8%	2,048,462	+17%	3,491,714	+6%	1,719,686 +8%		
<b>IFR Overs</b>											
1988	8,744,168	+6%	5,592,973	+11%	351,153	-4%	1,341,449	+2%	1,458,593 -6%		
1987	8,257,869	+7%	5,029,040	+10%	365,839	+5%	1,316,779	+5%	1,546,211 +2%		
1986	7,686,365	+8%	4,570,084	+11%	350,057	+6%	1,257,029	-	1,309,195 +4%		
1985	7,140,125	+2%	4,103,334	+1%	329,635	+21%	1,258,430	-2%	1,445,726 -1%		
1984	7,035,058	+3%	4,049,955	+2%	272,225	+34%	1,283,641	+4%	1,429,237 +3%		

\* Less than 0.5 percent.

: The number of IFR Departures multiplied by two, plus the number of IFR Overs.

**TABLE 2.4**  
AIR TRAFFIC ACTIVITY AT AIRPORT TRAFFIC CONTROL TOWERS, BY AVIATION CATEGORY FISCAL YEARS 1984 - 1988

	Year	Airport Operations						General Aviation Annual Change	Military Annual Change		
		Total		Air Carrier		Air Taxi					
		Total	Annual Change	Total	Annual Change	Total	Annual Change				
<b>Total Airport Operations</b>											
1988	61,299,017	+1%	12,752,997	-2%	8,255,279	+12%	37,503,249	-1%	2,787,492 +2%		
1987	60,976,539	+3%	13,052,061	+6%	7,347,057	+6%	37,830,524	+2%	2,736,917 +4%		
1986	58,956,464	+2%	12,300,371	+9%	6,915,478	-	37,100,657	-	2,639,958 +4%		
1985	57,937,465	+2%	11,281,308	+4%	6,916,241	+5%	37,191,215	+1%	2,548,701 +4%		
1984	56,958,937	+7%	10,879,575	+12%	6,607,453	+13%	37,021,894	+5%	2,450,015 -1%		
<b>Itinerant Operations</b>											
1988	44,521,425	+1%	12,752,997	-2%	8,255,279	+12%	22,096,026	+	1,417,123 +3%		
1987	43,859,898	+3%	13,052,061	+6%	7,347,057	+6%	22,078,782	+1%	1,381,998 +2%		
1986	42,515,777	+2%	12,300,371	+9%	6,915,478	-	21,542,188	-2%	1,357,740 +5%		
1985	41,864,894	+2%	11,281,308	+4%	6,916,241	+5%	22,373,031	+1%	1,294,314 +5%		
1984	41,071,969	+8%	10,879,575	+12%	6,607,453	+13%	22,348,163	+1%	1,236,778 +3%		
<b>Local Operations</b>											
1988	16,777,592	-2%	—	—	—	—	15,407,223	-2%	1,370,369 +1%		
1987	17,106,661	+4%	—	—	—	—	15,751,742	+6%	1,354,919 +6%		
1986	16,440,687	+2%	—	—	—	—	15,158,469	+2%	1,282,218 +2%		
1985	16,072,571	+1%	—	—	—	—	14,818,184	+1%	1,254,387 +4%		
1984	15,886,968	+4%	—	—	—	—	14,673,731	+5%	1,213,237 -4%		

\* Less than 0.5 percent.

**TABLE 2.5**  
**AIR TRAFFIC ACTIVITY AT FAA FACILITIES, BY AVIATION CATEGORY FISCAL YEARS 1984 - 1988**

	Year	Total		Air Carrier		Air Taxi		General Aviation		Military	
		Total	Annual Change	Total	Annual Change	Total	Annual Change	Total	Annual Change	Total	Annual Change
Total Instrument Operations	1988	44,544,281	+3%	13,422,772	-2%	8,449,004	+15%	18,269,083	+2%	4,403,422	-1%
	1987	43,407,628	+7%	13,730,330	+8%	7,320,676	+10%	17,914,358	+7%	4,442,264	+3%
	1986	40,466,365	+5%	12,732,823	+9%	6,626,572	+4%	16,787,756	+2%	4,299,214	+4%
	1985	38,702,396	+4%	11,751,323	+4%	6,390,297	+7%	16,428,676	+3%	4,132,100	+4%
	1984	37,327,646	+10%	11,333,489	+12%	5,997,079	+12%	16,023,211	+9%	3,973,267	+4%
Total Instrument Approaches	1988	1,914,612	-17%	692,218	-20%	447,950	-7%	662,965	-19%	111,479	-17%
	1987	2,306,401	-10%	870,189	-14%	483,441	-4%	318,163	-12%	134,608	-3%
	1986	2,570,631	+17%	1,003,540	+31%	501,474	+8%	927,007	+11%	138,610	+9%
	1985	2,196,181	-3%	767,729	-1%	463,204	-4%	837,663	-5%	127,585	-1%
	1984	2,273,516	+12%	773,385	+15%	483,389	+15%	887,424	+8%	129,318	+6%
Total Instrument Approaches at Control Facilities	1988	1,723,434	-19%	678,902	-20%	378,679	-11%	567,154	-22%	98,699	-20%
	1987	2,123,347	-11%	833,670	-14%	423,214	-4%	723,447	-13%	123,016	-3%
	1986	2,384,088	+17%	987,835	+31%	440,339	+8%	829,273	+11%	126,641	+10%
	1985	2,029,327	-3%	754,812	-1%	409,177	-6%	750,387	-5%	114,951	+6%
	1984	2,091,167	+11%	759,595	+16%	433,144	+14%	790,230	+7%	108,198	-3%

\* Less than 0.5 percent.

<sup>1</sup> Excludes instrument approaches provided by Air Route Traffic Control Centers.

**TABLE 2.6**  
**AIR TRAFFIC ACTIVITY AT FLIGHT SERVICE FACILITIES FISCAL YEARS 1984 - 1988**

	Year	Flight Services <sup>1</sup>		Flight Plans Originated		Annual Change		VFR		Annual Change		Airport Advisories		Pilot Briefs	
		Total	Annual Change	Total	Annual Change	IFR-DVFR	Annual Change	Total	Annual Change	VFR	Annual Change	Total	Annual Change	Total	Annual Change
Flight Service Stations	1988	44,849,559	-6%	7,551,660	-1%	5,837,514	-2%	1,714,146	+1%	1,953,323	-19%	11,658,729	-9%		
	1987	47,747,493	-3%	7,643,574	+2%	5,943,542	+1%	1,700,032	+5%	2,442,289	-7%	12,750,575	-5%		
	1986	48,932,535	-7%	7,517,796	-6%	5,896,633	-6%	1,621,163	-5%	2,595,833	-8%	13,381,434	-8%		
	1985	52,858,048	-4%	7,985,889	-2%	6,287,882	-2%	1,698,007	-4%	2,826,234	-5%	14,578,867	-4%		
	1984	54,779,576	-4%	8,176,075	+*	6,405,209	+2%	1,770,866	-4%	2,963,968	-5%	15,141,954	-6%		
International Flight Service Stations	1988	1,456,138	+2%	318,729	+1%	162,314	+7%	156,415	-5%	5,707	-29%	267,199	+11%		
	1987	1,438,354	-8%	315,299	-1%	151,314	+6%	163,985	-6%	8,039	-11%	241,320	-12%		
	1986	1,562,753	-25%	317,233	-17%	142,558	-21%	174,675	-13%	9,062	-3%	274,015	-31%		
	1985	2,097,001	-1%	380,168	+3%	179,428	-4%	200,740	+9%	9,339	-41%	437,432	+2%		
	1984	2,121,709	-3%	370,513	-2%	185,954	+3%	184,559	-7%	15,883	+31%	430,352	+3%		

\* Less than 0.5 percent.

<sup>1</sup> The sum of flight plans originated and pilot briefs, multiplied by two, plus the number of aircraft contacted (see Table 2.7). No credit is allowed for airport advisories.

**TABLE 2.7**  
**AIRCRAFT CONTACTED AT FLIGHT SERVICE FACILITIES, BY AVIATION CATEGORY FISCAL YEARS 1984 - 1988**

Year	Aircraft Contacted										
	Total		Air Carrier		Air Taxi		General Aviation		Military		
	Total	Annual Change	Total	Annual Change	Total	Annual Change	Total	Annual Change	Total	Annual Change	
Flight Service Stations	1988	6,428,781	-8%	284,210	-20%	911,119	-4%	4,811,707	-8%	421,745	-6%
	1987	6,959,195	-3%	354,388	-5%	948,407	-5%	5,208,721	-3%	447,679	+4%
	1986	7,184,075	-7%	372,223	-4%	998,498	-9%	5,382,619	-8%	430,735	+1%
	1985	7,738,536	-5%	386,479	-7%	1,101,020	+1*	5,826,387	-6%	424,	+1%
	1984	8,143,518	-5%	415,984	+5%	1,097,332	+1%	6,208,177	-6%	422,025	-1%
IFR-DVFR	1988	1,872,454	-8%	275,321	-17%	422,651	-	1,020,546	-10%	153,936	-3%
	1987	2,042,270	-2%	331,368	-4%	423,643	-2%	1,129,239	-3%	158,020	+9%
	1986	2,087,519	-6%	345,735	-1%	432,683	-6%	1,163,883	-7%	145,218	-3%
	1985	2,211,819	-3%	349,104	-3%	460,369	+1*	1,253,174	-5%	145,172	+3%
	1984	2,280,781	+1%	358,758	+12%	459,039	+5%	1,317,446	-2%	145,538	+4%
VFR	1988	4,556,327	-7%	8,889	-61%	488,468	-7%	3,791,161	-7%	267,809	-8%
	1987	4,916,925	-4%	23,020	-13%	524,764	-7%	4,079,482	-3%	289,659	+1%
	1986	5,096,556	-8%	26,488	-29%	565,815	-12%	4,218,736	-8%	285,517	+4%
	1985	5,526,717	-6%	37,375	-35%	640,651	+1*	4,573,213	-6%	275,478	-
	1984	5,862,737	-7%	57,226	-23%	638,293	-1%	4,890,731	-7%	276,487	-3%
International Flight Service Stations	1988	293,058	-10%	12,861	+14%	77,175	-22%	196,503	-5%	6,519	-3%
	1987	325,116	-15%	11,251	+6%	99,531	-32%	207,605	-4%	6,729	+3%
	1986	380,257	-18%	10,649	+16%	147,159	-5%	215,941	-26%	6,508	-14%
	1985	461,801	-11%	9,142	-86%	154,434	+7%	290,684	-3%	7,541	-29%
	1984	519,979	-11%	66,430	-44%	144,390	-4%	298,528	+1%	10,631	-49%
IFR-DVFR	1988	39,838	+8%	12,837	+20%	5,541	+33%	18,901	-3%	2,559	-3%
	1987	36,995	-1%	10,712	+3%	4,171	+40%	19,461	-10%	2,651	+17%
	1986	37,221	-3%	10,415	+17%	2,979	-42%	21,562	-2%	2,265	-10%
	1985	38,490	-59%	8,927	-86%	5,121	+20%	21,935	+19%	2,507	-59%
	1984	94,745	-39%	65,998	-44%	4,255	+23%	18,394	-4%	6,098	-62%
VFR	1988	253,220	-12%	24	-96%	71,634	-25%	177,602	-6%	3,960	-3%
	1987	288,121	-16%	539	+30%	95,360	-34%	188,144	-3%	4,078	-4%
	1986	343,036	-19%	234	+9%	144,180	-3%	194,379	-28%	4,243	-16%
	1985	423,311	-1%	215	-50%	149,313	-7%	286,749	-4%	5,034	+11%
	1984	425,234	-1%	432	-34%	140,135	-5%	280,134	+1%	4,533	-5%

\* Less than 0.5 percent.

TABLE 2.8

TOP 25 FAA-OPERATED AIRPORT TRAFFIC CONTROL TOWERS, BY RANK ORDER OF TOTAL OPERATIONS AND BY AVIATION CATEGORY INCLUDING AIR CARRIER RANK FISCAL YEAR 1988

Tower	Total		Air Carrier		Air Taxi	General Aviation	Military
	Rank	Operations	Rank	Operations			
Chicago O'Hare Int'l .....	1	795,749	1	631,073	129,981	31,208	3,487
Atlanta International.....	2	782,686	2	562,698	191,203	27,449	1,336
Dallas Ft. Worth Reg'l.....	3	664,268	3	490,327	149,880	22,554	1,507
Los Angeles International .....	4	631,898	4	435,751	135,728	55,548	4,871
Santa Ana.....	5	528,165	57	61,987	21,132	440,703	4,343
Denver Stapleton Int'l.....	6	511,326	5	374,614	94,171	40,205	2,336
San Francisco .....	7	461,213	6	321,420	104,884	32,378	2,531
Van Nuys.....	8	459,659	270	19	610	455,130	3,900
Phoenix Sky Harbor Int'l .....	9	455,342	10	268,236	65,697	114,529	6,880
Boston Logan .....	10	445,173	14	246,423	146,793	51,683	274
Long Beach.....	11	435,290	101	18,007	6,682	407,567	3,034
St. Louis Int'l.....	12	429,370	7	285,710	87,098	43,364	11,198
Fort Worth Meacham.....	13	424,958	254	52	3,953	420,032	921
Philadelphia Int'l.....	14	415,604	20	195,506	161,685	57,199	1,214
Seattle Boeing.....	15	414,105	157	6,398	18,482	386,290	2,935
Charlotte Douglas .....	16	405,227	17	213,291	104,298	83,895	3,743
Oakland International .....	17	402,261	46	81,209	52,256	267,678	1,118
Pittsburgh Greater Int'l .....	18	386,945	11	256,627	97,706	25,937	6,675
Detroit Metro Wayne Co. ....	19	380,161	13	250,445	69,470	59,939	307
Minneapolis St. Paul Int'l .....	20	379,806	16	214,025	87,442	73,146	5,193
Pontiac.....	21	379,544	240	167	7,783	370,622	972
Newark.....	22	376,822	8	282,488	67,773	25,971	588
Las Vegas McCarran .....	23	372,607	24	177,700	80,766	105,340	8,801
Denver/Centennial.....	24	371,799	—	0	3,795	361,391	6,613
Honolulu .....	25	367,141	23	187,445	57,366	86,418	35,912

NA Not Applicable.

NOTE: Total Operations rank was based on total air traffic activity at 398 FAA-Operated Towers. Air Carrier operations rank was based on air carrier activity at 319 FAA-Operated Towers. Not all FAA-Operated Towers handle air carrier operations.

TABLE 2.9

TOP 25 FAA-OPERATED AIRPORT TRAFFIC CONTROL TOWERS, BY RANK ORDER OF AIR CARRIER OPERATIONS AND BY AVIATION CATEGORY INCLUDING TOTAL OPERATIONS RANK FISCAL YEAR 1988

Tower	Air Carrier		Air Taxi	General Aviation	Military	Total	
	Rank	Operations				Rank	Operations
Chicago O'Hare Int'l.....	1	631,073	129,981	31,208	3,487	1	795,749
Atlanta International.....	2	562,698	191,203	27,449	1,336	2	782,686
Dallas Ft. Worth Reg'l.....	3	490,327	149,880	22,554	1,507	3	664,268
Los Angeles Int'l.....	4	435,751	135,728	55,548	4,871	4	631,898
Denver Stapleton Int'l.....	5	374,614	94,171	40,205	2,336	6	511,326
San Francisco.....	6	321,420	104,884	32,378	2,531	7	461,213
St. Louis Int'l.....	7	285,710	89,098	43,364	11,198	12	429,370
Newark.....	8	282,488	67,775	25,971	588	22	376,822
La Guardia.....	9	269,643	66,403	27,608	533	26	364,187
Phoenix Sky Harbor Int'l.....	10	268,236	65,697	114,529	6,880	9	455,342
Pittsburgh Greater Int'l.....	11	256,627	97,706	25,937	6,675	18	386,945
Miami International.....	12	254,597	56,417	45,718	1,688	28	358,420
Detroit Metro Wayne County.....	13	250,445	69,470	59,939	307	19	380,161
Boston Logan.....	14	246,423	146,793	51,683	274	10	445,173
John F. Kennedy Int'l.....	15	221,615	81,318	25,012	681	30	328,626
Minneapolis St. Paul Int'l.....	16	214,025	87,442	73,146	5,193	20	379,806
Charlotte Douglas.....	17	213,291	104,298	83,895	3,743	16	405,227
Memphis International.....	18	211,732	63,570	76,906	6,590	27	358,798
Houston Intercontinental.....	19	205,969	40,103	50,098	1,108	34	297,278
Philadelphia Int'l.....	20	195,506	161,685	57,199	1,214	14	415,604
Washington National.....	21	90,609	60,213	76,494	321	31	327,637
Orlando Int'l Airport.....	22	188,024	60,396	37,843	4,072	37	290,335
Honolulu.....	23	187,445	57,366	86,418	35,912	25	367,141
Las Vegas McCarran.....	24	177,700	80,766	105,340	8,801	23	372,607
Seattle Tacoma.....	25	175,746	119,656	15,614	467	32	311,483

NOTE: Total Operations rank was based on total air traffic activity at 398 FAA-Operated Towers. Air Carrier operations rank was based on air carrier activity at 319 FAA-Operated Towers. Not all FAA-Operated Towers handle air carrier operations.

TABLE 2.10

TOTAL FAA AIR TRAFFIC ACTIVITY BY REGION AND STATE, AND BY FAA-OPERATED TOWERS, AIR ROUTE TRAFFIC CONTROL CENTERS, FLIGHT SERVICE STATIONS, AND INTERNATIONAL FLIGHT SERVICE STATIONS FISCAL YEAR 1988

FAA Region and State	Airport Operations (Towers)	Aircraft Handled (Centers)	Aircraft Contacted		Total Flight Services	
			Flight Service Stations	Int'l Flight Service Sta.	Flight Service Stations	Int'l Flight Service Sta.
TOTAL .....	61,299,017	36,350,374	6,428,781	293,058	44,849,559	1,468,138
Alaskan—Total .....	1,049,467	431,488	976,320	—	2,400,054	—
Central—Total .....	2,423,283	1,721,029	393,112	—	2,829,832	—
Iowa .....	445,839	—	52,025	—	561,795	—
Kansas .....	490,029	—	113,199	—	648,025	—
Missouri .....	1,184,373	1,721,029	136,574	—	1,174,640	—
Nebraska .....	303,042	—	91,314	—	445,372	—
Eastern—Total .....	8,250,588	4,081,872	509,126	—	6,131,440	—
Delaware .....	211,498	—	—	—	—	—
District of Columbia .....	327,637	2,249,564	71,589	—	969,507	—
Maryland .....	532,354	—	49,664	—	119,428	—
New Jersey .....	1,309,604	—	56,766	—	1,001,858	—
New York .....	2,509,854	1,832,308	82,734	—	1,379,176	—
Pennsylvania .....	1,955,185	—	147,904	—	1,722,706	—
Virginia .....	1,025,365	—	15,588	—	266,922	—
West Virginia .....	379,091	—	84,881	—	671,843	—
Great Lakes—Total .....	9,716,706	8,315,154	837,275	—	7,478,071	—
Illinois .....	2,840,663	2,387,093	112,418	—	1,188,678	—
Indiana .....	873,372	1,945,839	81,724	—	1,107,978	—
Michigan .....	2,041,369	—	104,938	—	1,057,710	—
Minnesota .....	993,530	1,624,356	142,495	—	823,373	—
North Dakota .....	418,294	—	55,312	—	379,964	—
Ohio .....	1,529,783	2,357,866	123,235	—	1,826,295	—
South Dakota .....	156,698	—	98,823	—	355,783	—
Wisconsin .....	862,997	—	118,330	—	738,290	—
New England—Total .....	3,650,036	1,643,366	149,743	—	2,051,343	—
Connecticut .....	896,298	—	74,548	—	1,268,540	—
Maine .....	254,385	—	35,204	—	400,576	—
Massachusetts .....	1,915,031	1,643,366	—	—	—	—
New Hampshire .....	233,480	—	6,204	—	44,142	—
Rhode Island .....	202,946	—	—	—	—	—
Vermont .....	147,896	—	33,787	—	338,085	—
Northwest Mountain—Total .....	5,243,992	3,850,228	886,338	—	3,932,406	—
Colorado .....	1,403,552	1,373,742	148,559	—	810,201	—
Idaho .....	342,205	—	54,492	—	257,754	—
Montana .....	316,037	—	169,805	—	512,615	—
Oregon .....	873,477	—	112,021	—	585,543	—
Utah .....	382,780	1,119,954	68,186	—	332,324	—
Washington .....	1,802,877	1,356,532	231,569	—	1,101,309	—
Wyoming .....	123,064	—	103,706	—	332,660	—

TABLE 2.10—Continued

TOTAL FAA AIR TRAFFIC ACTIVITY BY REGION AND STATE, AND BY FAA-OPERATED TOWERS, AIR ROUTE TRAFFIC CONTROL CENTERS, FLIGHT SERVICE STATIONS, AND INTERNATIONAL FLIGHT SERVICE STATIONS FISCAL YEAR 1958

FAA Region and State	Airport Operations (Towers)	Aircraft Handled (Centers)	Aircraft Contacted		Total Flight Services	
			Flight Service Stations	Int'l Flight Service Sta.	Flight Service Stations	Int'l Flight Service Sta.
Southern—Total .....	11,220,092	7,498,447	1,033,151	293,058	9,353,425	1,468,138
Alabama.....	641,002	—	119,196	—	956,194	—
Florida.....	4,879,971	3,312,667	283,094	219,458	2,696,436	1,239,754
Georgia.....	1,541,537	2,390,221	110,304	—	1,356,586	—
Kentucky.....	747,247	—	86,530	—	603,712	—
Mississippi.....	315,724	—	55,675	—	406,947	—
North Carolina.....	1,195,123	—	164,676	—	1,340,798	—
Puerto Rico.....	271,599	—	—	73,600	—	228,384
South Carolina.....	459,188	—	80,299	—	859,855	—
Tennessee.....	1,003,597	1,795,559	132,377	—	1,132,897	—
Virgin Islands.....	165,104	—	—	—	—	—
Southwest—Total .....	6,644,989	4,887,836	701,982	—	5,474,614	—
Arkansas.....	334,904	—	89,020	—	559,660	—
Louisiana.....	1,049,533	—	43,479	—	602,847	—
New Mexico.....	389,048	1,431,175	140,396	—	550,796	—
Oklahoma.....	776,781	—	102,800	—	757,658	—
Texas.....	4,094,723	3,456,661	326,287	—	3,003,653	—
Western-Pacific—Total.....	13,099,864	3,920,954	939,734	—	5,198,374	—
American Samoa.....	11,314	—	—	—	—	—
Arizona.....	1,804,241	—	131,376	—	652,100	—
California.....	9,746,998	3,478,780	661,647	—	3,842,079	—
Guam.....	—	53,688	—	—	—	—
Hawaii.....	854,304	388,486	66,991	—	306,187	—
Nevada.....	661,698	—	79,720	—	398,008	—
Wake Island.....	21,309	—	—	—	—	—

**CALENDAR YEARS**  
**(TABLES 2.11 – 2.18)**

TABLE 2.11

AIR TRAFFIC ACTIVITY AT AIR ROUTE TRAFFIC CONTROL CENTERS, BY AVIATION CATEGORY CALENDAR YEARS 1984 - 1988

	Year	Aircraft Handled						Military Total	Annual Change
		Total	Annual Change	Air Carrier	Total	Air Taxi	General Aviation		
IFR Aircraft Handled <sup>1</sup>	1988	36,383,294	+1%	17,869,355	+2%	5,662,629	+5%	8,066,715	-
	1987	36,112,129	+5%	17,452,192	+8%	5,380,048	+6%	8,006,582	+1%
	1986	34,390,514	+4%	16,223,428	+9%	5,132,155	+7%	8,003,192	-3%
	1985	33,019,705	+3%	14,924,724	+4%	4,844,414	+7%	8,244,445	-1%
	1984	32,063,058	+7%	14,352,635	+7%	4,497,182	+16%	8,322,338	+4%
	1988	13,788,054	-1%	6,126,722	-	2,671,994	+6%	3,358,945	-1%
	1987	13,866,150	+4%	6,139,083	+6%	2,516,471	+6%	3,384,539	+1%
IFR Departures	1986	13,338,657	+4%	5,782,325	+8%	2,380,794	+6%	3,370,374	-3%
	1985	12,875,279	+3%	5,356,781	+4%	2,255,695	+7%	3,492,284	-1%
	1984	12,493,511	+8%	5,137,502	+9%	2,102,711	+15%	3,524,746	+5%
	1988	8,807,186	+5%	5,615,911	+9%	318,641	-8%	1,348,825	+2%
	1987	8,379,829	+7%	5,174,026	+11%	347,106	+11%	1,327,504	+5%
	1986	7,813,200	+7%	4,658,778	+11%	370,567	+11%	1,267,444	+1%
	1985	7,269,147	+3%	4,211,162	+3%	333,024	+12%	1,239,877	-1%
IFR Overs	1984	7,076,036	+3%	4,077,631	+2%	291,760	+34%	1,272,846	+1%

<sup>\*</sup> Less than 0.5 percent.<sup>1</sup> The number of IFR Departures multiplied by two, plus the number of IFR OversTABLE 2.12  
AIR TRAFFIC ACTIVITY AT AIRPORT TRAFFIC CONTROL TOWERS, BY AVIATION CATEGORY CALENDAR YEARS 1984 - 1988

	Year	Airport Operations						Military Total	Annual Change
		Total	Annual Change	Air Carrier	Total	Air Taxi	General Aviation		
Total Airport Operations	1988	61,537,927	+1%	12,741,239	-3%	8,315,411	+10%	37,669,713	+
	1987	61,004,284	+2%	13,092,751	+5%	7,553,620	+9%	37,575,141	-
	1986	59,754,343	+3%	12,523,570	+9%	6,945,108	-	37,657,377	+2%
	1985	58,021,521	+1%	11,450,621	+3%	6,949,436	+3%	37,044,465	-1%
	1984	57,755,928	+7%	11,110,294	+12%	6,735,875	+11%	37,447,851	+6%
	1988	44,659,108	+1%	12,741,239	-3%	8,315,411	+10%	22,188,943	+1%
	1987	44,039,814	+3%	13,092,751	+5%	7,553,620	+9%	21,933,252	-
Itinerant Operations	1986	42,919,234	+2%	12,523,570	+9%	6,945,108	-	22,088,066	-1%
	1985	42,000,109	+1%	11,450,621	+3%	6,949,436	+3%	22,278,498	-1%
	1984	41,684,589	+8%	11,110,294	+12%	6,735,875	+11%	22,583,123	+6%
	1988	16,878,819	-1%	-	-	-	-	15,480,770	-1%
	1987	16,964,470	+1%	-	-	-	-	15,531,889	+1%
	1986	16,835,109	+5%	-	-	-	-	15,539,311	+3%
	1985	16,021,412	-	-	-	-	-	14,765,967	+3%
Local Operations	1984	16,071,339	+5%	-	-	-	-	14,834,728	-3%

<sup>\*</sup> Less than 0.5 percent.

**TABLE 2.13**  
**AIR TRAFFIC ACTIVITY AT FAA FACILITIES, BY AVIATION CATEGORY CALENDAR YEARS 1984 - 1988**

	Year	Total		Air Carrier		Air Taxi		General Aviation		Military	
		Total	Annual Change	Total	Annual Change	Total	Annual Change	Total	Annual Change	Total	Annual Change
Total Instrument Operations	1988	44,838,714	+2%	13,477,165	-2%	8,540,039	+13%	18,402,606	+2%	4,438,904	-
	1987	43,813,578	+6%	13,791,619	+6%	7,582,028	+12%	17,998,854	+5%	4,441,077	+2%
	1986	41,293,048	+6%	13,021,064	+9%	6,766,667	+5%	17,156,395	+1%	4,348,922	+4%
	1985	38,804,981	+2%	11,893,855	+3%	6,444,136	+5%	16,284,634	-	4,180,356	+4%
	1984	31,987,665	+9%	11,562,870	+12%	6,108,342	+10%	16,315,315	+9%	4,001,138	+5%
Total Instrument Approaches	1988	1,830,121	-12%	641,592	-20%	424,490	-8%	651,689	-8%	112,330	-3%
	1987	2,087,672	-17%	803,771	-17%	459,405	-7%	708,701	-22%	115,795	-21%
	1986	2,518,330	+9%	962,993	+15%	494,075	+3%	914,107	+5%	147,205	+15%
	1985	2,299,572	+4%	822,497	+6%	480,898	+2%	870,545	+2%	125,632	+1%
	1984	2,219,561	+11%	770,761	+7%	473,332	+3%	851,238	-3%	124,230	-6%
Total Instrument Approaches at Control Facilities <sup>1</sup>	1988	1,644,854	-14%	629,719	-20%	358,630	-9%	557,759	-9%	98,746	-6%
	1987	1,904,605	-18%	788,015	-17%	395,786	-9%	616,231	-25%	104,573	+22%
	1986	2,330,153	+9%	945,599	+14%	433,426	+2%	816,590	+4%	134,538	+16%
	1985	2,128,936	+3%	810,009	+7%	424,261	+1%	781,110	+2%	113,536	+1%
	1984	2,059,527	+2%	757,378	+7%	422,336	+2%	767,273	-3%	112,540	-

<sup>\*</sup> Less than 0.5 percent.

<sup>1</sup> Excludes instrument approaches provided by Air Route Traffic Control Centers.

**TABLE 2.14**

	Year	Flight Plans Originated				Airport Advisories				Pilot Briefs	
		Flight Services <sup>1</sup>	Total	Annual Change	IFR-DVFR	Annual Change	VFR	Annual Change	Total	Annual Change	Total
Flight Service Stations	1988	46,019,119	-1%	7,533,950	-1%	5,822,918	-1%	1,711,032	-1%	1,865,295	-19%
	1987	46,661,663	+4%	7,601,465	+1%	5,878,781	+5%	1,722,684	+5%	2,305,151	-11%
	1986	48,727,382	-6%	7,503,913	-5%	5,867,455	-5%	1,636,458	-3%	2,584,214	-7%
	1985	51,819,747	-5%	7,874,976	+4%	6,191,977	-7% <sup>2</sup>	1,682,999	-5%	2,774,929	-6%
	1984	54,586,516	-3%	8,178,597	+1%	6,420,450	+1%	1,758,147	-3%	2,940,906	-3%
International Flight Service Stations	1988	1,474,570	+3%	317,637	+1%	161,907	+6%	155,730	-4%	5,700	-21%
	1987	1,434,844	-6%	314,349	-1%	152,121	+5%	162,228	-6%	7,194	-23%
	1986	1,534,091	-26%	317,939	-16%	145,311	-18%	172,628	-13%	9,352	-3%
	1985	2,080,472	-1%	377,347	+2%	178,134	-4%	199,213	+7%	9,599	-65%
	1984	2,092,488	-4%	371,116	-2%	185,407	+2%	185,709	-5%	15,857	+51%

<sup>\*</sup> Less than 0.5 percent.

<sup>1</sup> The sum of flight plans originated and pilot briefs, multiplied by two, plus the number of aircraft contacted (see Table 2.15). No credit is allowed for airport advisories.

TABLE 2.15

AIRCRAFT CONTACTED AT FLIGHT SERVICE FACILITIES, BY AVIATION CATEGORY CALENDAR YEARS 1984 - 1988

	Year	Aircraft Contacted									
		Total		Air Carrier		Air Taxi		General Aviation		Military	
		Total	Annual Change	Total	Annual Change	Total	Annual Change	Total	Annual Change	Total	Annual Change
Flight Service Stations	1988	6,332,081	-7%	265,482	-22%	890,071	-4%	4,763,050	-6%	413,478	-9%
	1987	6,815,417	-5%	342,138	-6%	930,059	-5%	5,087,614	-6%	455,606	+7%
	1986	7,156,034	-6%	364,183	-6%	977,917	-10%	5,388,852	-6%	425,082	-2%
	1985	7,608,999	-6%	385,568	-8%	1,087,881	-1%	5,703,345	-8%	432,205	+2%
	1984	8,075,766	-3%	416,072	-30%	1,095,251	-	6,141,629	-5%	422,814	+
IFR-DVFR	1988	1,838,167	-6%	257,706	-20%	415,728	-1%	1,010,437	-5%	154,296	-3%
	1987	1,964,873	-5%	321,056	-5%	417,846	-3%	1,067,407	-8%	158,564	+8%
	1986	2,073,740	-5%	339,552	-3%	429,062	-5%	1,158,869	-6%	146,257	-3%
	1985	2,180,265	-4%	351,775	-3%	450,979	-2%	1,227,469	-6%	150,042	+3%
	1984	2,266,652	-	361,508	+10%	458,246	+1%	1,301,754	-5%	145,144	+2%
VFR	1988	4,493,914	-7%	7,776	-63%	474,343	-7%	3,752,613	-7%	259,182	-13%
	1987	4,850,544	-5%	21,082	-14%	512,213	-7%	4,020,207	-5%	297,042	+7%
	1986	5,082,294	-6%	24,631	-27%	548,855	-14%	4,229,983	-5%	278,825	-1%
	1985	5,428,734	-7%	33,793	-62%	636,902	-	4,475,876	-8%	282,163	+1%
	1984	5,809,114	-4%	54,564	-21%	637,005	-1%	4,839,875	-5%	277,670	-
International Flight Service Stations	1988	295,520	-6%	13,208	+16%	75,163	-19%	200,302	-2%	6,847	+2%
	1987	314,694	-15%	11,394	+5%	92,576	-33%	204,023	-5%	6,701	+3%
	1986	371,351	-19%	10,841	+11%	138,166	-10%	215,833	-24%	6,511	-14%
	1985	457,172	-9%	9,763	-336%	154,021	+4%	285,780	-5%	7,608	+3%
	1984	496,624	-14%	42,522	-63%	147,836	+2%	298,905	+2%	7,361	+66%
IFR-DVFR	1988	40,996	+11%	13,188	+19%	5,604	+26%	19,582	+5%	2,622	+2%
	1987	36,779	-1%	11,077	+6%	4,447	+45%	18,672	-13%	2,583	+7%
	1986	37,301	-5%	10,405	+8%	3,066	-37%	21,425	-5%	2,405	-1%
	1985	39,377	-72%	9,595	-339%	4,850	+5%	22,511	+19%	2,421	-12%
	1984	67,743	-60%	42,127	-63%	4,622	-33%	18,287	-4%	2,707	+84%
VFR	1988	254,524	-8%	20	-94%	69,559	-21%	180,720	-2%	4,225	+3%
	1987	277,915	-17%	317	-27%	88,129	-35%	185,351	-5%	4,118	+
	1986	334,050	-20%	436	+160%	135,100	-9%	194,408	-26%	4,106	-21%
	1985	417,795	-3%	168	-135%	149,171	+4%	263,269	-7%	5,187	+10%
	1984	428,881	+2%	395	-43%	143,214	-2%	280,618	-2%	4,654	+

\* Less than 0.5 percent

TABLE 2.16

TOP 25 FAA-OPERATED AIRPORT TRAFFIC CONTROL TOWERS, BY RANK ORDER OF TOTAL OPERATIONS AND BY AVIATION CATEGORY  
INCLUDING AIR CARRIER RANK CALENDAR YEAR 1988

Tower	Rank	Total Operations	Rank	Air Carrier	Air Taxi	General Aviation	Military
Chicago O'Hare Int'l.....	1	803,028	1	631,447	136,664	31,267	3,650
Atlanta International.....	2	778,785	2	561,435	189,581	26,575	1,194
Dallas Ft. Worth Regional.....	3	674,850	3	495,707	155,758	22,077	1,308
Los Angeles International.....	4	623,519	4	430,394	135,508	52,903	4,714
Santa Ana.....	5	533,484	56	62,710	21,376	444,599	4,799
Denver Stapleton Int'l.....	6	501,950	5	365,199	94,379	40,673	1,699
Van Nuys.....	7	468,779	267	20	617	464,512	3,630
Phoenix Sky Harbor Int'l.....	8	464,169	9	271,079	65,563	119,618	7,909
San Francisco.....	9	455,418	6	317,633	100,895	34,383	2,507
Fort Worth Meacham .....	10	443,494	250	51	2,847	440,006	590
Long Beach.....	11	439,599	102	17,757	7,735	410,970	3,137
Boston Logan.....	12	438,243	14	246,806	141,279	49,884	274
St. Louis International.....	13	432,520	7	287,878	91,985	42,191	10,466
Philadelphia Int'l.....	14	415,950	20	196,729	159,998	58,091	1,132
Seattle Boeing .....	15	411,722	150	7,261	19,514	382,205	2,742
Charlotte Douglas.....	16	411,445	16	217,425	107,327	82,933	3,760
Oakland International.....	17	400,338	48	77,383	54,046	267,913	996
Miami International .....	18	399,407	12	257,976	54,586	53,454	33,391
Pontiac.....	19	393,606	236	115	9,150	383,358	983
Pittsburgh Greater Int'l.....	20	389,749	11	258,491	98,647	25,753	3,858
Newark .....	21	380,081	8	285,182	68,490	25,823	586
Minneapolis St Paul Int'l.....	22	379,877	17	216,623	88,191	69,846	5,217
Honolulu.....	23	376,893	23	184,856	60,710	91,428	39,899
Detroit Metro Wayne.....	24	375,102	13	253,423	63,488	57,932	259
Denver/Centennial .....	25	371,484	—	0	4,029	359,351	8,104

NOTE: Total Operations rank was based on total air traffic activity at 39<sup>9</sup> FAA-Operated Towers. Air Carrier operations rank was based on air carrier activity at 319 FAA-Operated Towers. Not all FAA-Operated Towers handle air carrier operations.

TABLE 2.17

TOP 25 FAA-OPERATED AIRPORT TRAFFIC CONTROL TOWERS, BY RANK ORDER OF AIR CARRIER OPERATIONS AND BY AVIATION CATEGORY INCLUDING TOTAL OPERATIONS RANK CALENDAR YEAR 1988

Tower	Rank	Air Carrier	Air Taxi	General Aviation	Military	Rank	Total Operations
Chicago O'Hare Int'l.....	1	631,447	136,664	31,267	3,650	1	803,028
Atlanta International.....	2	561,435	189,581	26,575	1,194	2	778,785
Dallas Ft. Worth Regional.....	3	495,707	155,758	22,077	1,308	3	674,850
Los Angeles Int'l .....	4	430,394	135,508	52,903	4,714	4	623,519
Denver Stapleton Int'l.....	5	365,199	94,379	40,673	1,699	6	501,950
San Francisco.....	6	317,633	100,895	34,383	2,507	9	455,418
St. Louis Int'l.....	7	287,878	91,985	42,191	10,466	13	432,520
Newark .....	8	285,182	68,490	25,823	586	21	380,081
Phoenix Sky Harbor Int'l.....	9	271,079	65,563	119,618	7,909	8	464,169
La Guardia.....	10	270,810	66,297	27,530	491	27	365,128
Pittsburgh Greater Int'l.....	11	258,491	98,647	25,753	6,858	20	389,749
Miami International .....	12	257,976	54,586	53,454	33,391	18	399,407
Detroit Metro Wayne Co.....	13	253,423	63,488	57,932	259	24	375,102
Boston Logan.....	14	246,806	141,279	49,884	274	12	438,243
John F. Kennedy Int'l.....	15	223,840	80,772	24,720	647	30	329,979
Charlotte Douglas.....	16	217,425	107,327	82,933	3,760	16	411,445
Minneapolis St. Paul Int'l.....	17	216,623	88,191	69,846	5,217	22	379,877
Memphis International.....	18	209,368	60,908	75,357	7,161	28	352,794
Houston Intercontinental .....	19	204,137	41,592	48,441	1,046	36	295,216
Philadelphia Int'l.....	20	196,729	159,998	58,091	1,132	14	415,950
Washington National .....	21	192,642	58,527	76,227	265	31	327,661
Orlando Int'l.....	22	191,873	60,409	38,415	3,900	37	294,597
Honolulu.....	23	184,856	60,710	91,428	39,899	23	376,893
Seattle Tacoma Int'l .....	24	176,782	124,250	14,509	463	32	316,004
Las Vegas McCarran Int'l .....	25	172,871	82,694	106,822	8,617	26	371,004

NOTE: Total Operations rank was based on total air traffic activity at 398 FAA-Operated Towers. Air Carrier operations rank was based on air carrier activity at 319 FAA-Operated Towers. Not all FAA-Operated Towers handle air carrier operations.

TABLE 2.18

TOTAL FAA AIR TRAFFIC ACTIVITY BY REGION AND STATE, AND BY FAA-OPERATED TOWERS, AIR ROUTE TRAFFIC CONTROL CENTERS,  
FLIGHT SERVICE STATIONS AND INTERNATIONAL FLIGHT SERVICE STATIONS CALENDAR YEAR 1988

FAA Region and State	Airport Operations (Towers)	Aircraft Handled (Centers)	Aircraft Contacted		Total Flight Services	
			Flight Service Stations	Int'l Flight Service Sta.	Flight Service Stations	Int'l Flight Service Sta.
<b>TOTAL</b> .....	61,537,927	36,383,294	6,332,081	295,520	44,544,549	1,474,570
Alaskan—Total.....	1,038,515	429,193	968,970	—	2,364,642	—
Central—Total.....	2,475,874	1,729,475	382,532	—	2,855,320	—
Iowa.....	448,925	—	53,013	—	554,295	—
Kansas.....	508,322	—	102,387	—	633,111	—
Missouri.....	1,214,230	1,729,475	141,511	—	1,233,925	—
Nebraska.....	304,397	—	85,621	—	433,989	—
Eastern—Total.....	8,273,329	4,089,913	507,952	—	5,989,894	—
Delaware.....	219,606	—	—	—	—	—
District of Columbia.....	327,661	2,218,251	73,583	—	992,729	—
Maryland.....	536,912	—	46,872	—	105,060	—
New Jersey.....	1,324,921	—	56,491	—	996,241	—
New York.....	2,513,709	1,871,662	83,072	—	1,297,888	—
Pennsylvania.....	1,960,681	—	148,359	—	1,704,959	—
Virginia.....	1,006,416	—	15,635	—	254,981	—
West Virginia.....	383,423	—	83,940	—	638,036	—
Great Lakes—Total.....	9,794,822	8,408,215	816,747	—	7,462,143	—
Illinois.....	2,878,515	2,408,924	107,613	—	1,137,677	—
Indiana.....	862,291	1,986,201	81,074	—	1,107,914	—
Michigan.....	2,041,742	—	101,146	—	1,088,078	—
Minnesota.....	1,004,131	1,626,298	143,079	—	815,983	—
North Dakota.....	432,339	—	53,128	—	416,262	—
Ohio.....	1,532,949	2,386,792	114,063	—	1,806,093	—
South Dakota.....	154,859	—	98,546	—	352,540	—
Wisconsin.....	887,996	—	118,098	—	737,596	—
New England—Total.....	3,625,443	1,618,166	152,269	—	2,072,895	—
Connecticut.....	895,504	—	77,275	—	1,286,489	—
Maine.....	249,272	—	34,657	—	400,383	—
Massachusetts.....	1,903,657	1,618,166	—	—	—	—
New Hampshire.....	227,525	—	6,221	—	40,365	—
Rhode Island.....	201,767	—	—	—	—	—
Vermont.....	147,718	—	34,116	—	345,658	—
Northwest Mountain—Total.....	5,214,252	3,920,832	866,527	—	3,936,555	—
Colorado.....	1,396,203	1,401,850	146,251	—	806,867	—
Idaho.....	339,015	—	54,429	—	259,747	—
Montana.....	322,106	—	166,876	—	508,204	—
Oregon.....	876,756	—	111,940	—	595,422	—
Utah.....	381,135	1,138,851	68,012	—	331,400	—
Washington.....	1,776,332	1,380,131	216,506	—	1,105,212	—
Wyoming.....	122,705	—	102,513	—	329,703	—

TABLE 2.18—Continued

TOTAL FAA AIR TRAFFIC ACTIVITY BY REGION AND STATE, AND BY FAA-OPERATED TOWERS, AIR ROUTE TRAFFIC CONTROL CENTERS,  
FLIGHT SERVICE STATIONS AND INTERNATIONAL FLIGHT SERVICE STATIONS CALENDAR YEAR 1988

FAA Region and State	Airport Operations (Towers)	Aircraft Handled (Centers)	Aircraft Contacted		Total Flight Services	
			Flight Service Stations	Int'l Flight Service Sta.	Flight Service Stations	Int'l Flight Service Sta.
Southern—Total .....	11,333,836	7,517,411	1,029,222	295,520	9,285,664	1,474,570
Alabama.....	635,362	—	117,185	—	940,959	—
Florida.....	4,997,559	3,329,385	284,872	225,606	2,643,684	1,256,160
Georgia.....	1,541,573	2,382,492	108,044	—	1,369,422	—
Kentucky.....	748,535	—	79,051	—	580,561	—
Mississippi.....	314,575	—	56,361	—	411,601	—
North Carolina.....	1,200,952	—	170,076	—	1,334,380	—
Puerto Rico .....	275,067	—	—	69,914	—	218,410
South Carolina.....	457,408	—	79,744	—	864,812	—
Tennessee.....	997,677	1,805,534	133,889	—	1,140,245	—
Virgin Islands.....	165,128	—	—	—	—	—
Southwest—Total .....	6,648,346	4,907,161	700,220	—	5,445,598	—
Arkansas.....	335,239	—	84,749	—	552,751	—
Louisiana.....	1,026,204	—	42,544	—	604,940	—
New Mexico.....	388,739	1,419,458	141,734	—	556,114	—
Oklahoma.....	783,441	—	104,652	—	752,784	—
Texas.....	4,114,723	3,487,703	326,541	—	2,979,009	—
Western-Pacific—Total .....	13,133,510	3,762,928	,907,642	0	5,131,838	0
American Samoa.....	10,887	—	—	—	—	—
Arizona.....	1,830,498	—	133,381	—	653,781	—
California.....	9,830,498	3,440,694	635,409	—	3,790,947	—
Guam .....	—	54,968	—	—	—	—
Hawaii.....	874,297	267,266	61,249	—	293,603	—
Nevada.....	658,407	—	77,603	—	393,507	—
Wake Island.....	21,021	—	—	—	—	—

### **III. AIRPORTS**

Information about U.S. civil and joint-use landing facilities (including airports, heliports, stolports, and seaplane bases) was furnished by the FAA Office of Airport Standards. This information was obtained through physical inspection and mail solicitations, and was reported on the Airport Master Record (Form FAA 5010-1) and FAA Landing Facilities Information Request on Airports, Heliports, Stolports, and Seaplane Bases (Forms 5010-2 and 5010-5).

**TABLE 3.1**  
**TOTAL ALL FACILITIES ON RECORD WITH FAA 1979 - 1988**

Year	All Facilities <sup>1</sup>			Airports Only			
	Total	With Runway	With Paved Runways	Total	With Runway	With Paved Runways	Airports of Entry *
1979.....	14,746	4,631	5,618	12,064	4,365	4,256	60
1980.....	15,161	4,738	5,833	12,240	4,443	4,306	69
1981.....	15,476	4,796	6,012	12,427	4,474	4,351	69
1982.....	15,831	4,842	6,224	12,596	4,494	4,391	63
1983.....	16,029	4,878	6,441	12,653	4,513	4,431	59
1984.....	16,079	4,889	6,531	12,648	4,536	4,450	59
1985.....	16,318	4,941	6,721	12,744	4,582	4,486	57
1986.....	16,582	4,954	6,948	12,785	4,601	4,499	76
1987.....	17,015	4,922	7,232	12,907	4,610	4,526	80
1988.....	17,327	4,890	7,429	12,950	4,630	4,554	80

\* Excludes landing rights airports.

<sup>1</sup> All facilities include airports, heliports, seaports, and seaplane bases.

**TABLE 3.2**  
**U.S. CIVIL AND JOINT-USE AIRPORTS, HELIPORTS, STOLPORTS, AND SEAPLANE BASES, AND REPORTED ABANDONMENTS ON RECORD, BY  
 FAA REGION AND STATE DECEMBER 31, 1988**

FAA Region and State	Total Aircraft Facilities	Airports	Heliports	Stolports	Seaplane Bases	Reported Abandonments During Year
Total .....	17,327	12,950	3,913	72	392	333
United States—Total <sup>1</sup> .....	17,259	12,901	3,898	72	388	333
Alaskan—Total .....	603	478	20	—	105	3
Central—Total .....	1,417	1,245	165	3	4	36
Iowa .....	274	232	41	1	—	5
Kansas .....	390	365	24	1	—	6
Missouri .....	431	345	81	1	4	16
Nebraska .....	322	303	19	—	—	9
Eastern—Total .....	2,192	1,384	739	7	62	52
Delaware .....	34	21	13	—	—	1
District of Columbia .....	16	2	14	—	—	—
Maryland .....	157	111	44	1	1	1
New Jersey .....	317	115	189	—	13	7
New York .....	506	362	120	—	24	17
Pennsylvania .....	756	490	252	3	11	16
Virginia .....	313	224	83	3	3	6
West Virginia .....	93	59	24	—	10	4
Great Lakes—Total .....	4,190	3,445	643	11	91	93
Illinois .....	924	708	210	—	6	32
Indiana .....	545	451	88	2	4	15
Michigan .....	434	367	61	2	4	6
Minnesota .....	475	386	23	1	65	9
North Dakota .....	486	478	7	—	1	8
Ohio .....	714	521	189	4	—	13
South Dakota .....	155	148	6	1	—	4
Wisconsin .....	457	386	59	1	11	6
New England—Total .....	595	332	204	6	53	10
Connecticut .....	128	56	65	2	5	3
Maine .....	146	102	11	—	33	2
Massachusetts .....	170	77	81	1	11	2
New Hampshire .....	67	40	23	1	3	2
Rhode Island .....	23	12	10	—	1	—
Vermont .....	61	45	14	2	—	1
Northwest Mountain—Total .....	1,812	1,362	420	10	20	24
Colorado .....	396	223	168	5	—	8
Idaho .....	209	181	24	—	4	1
Montana .....	212	191	19	1	1	3
Oregon .....	367	284	78	3	2	5
Utah .....	113	86	27	—	—	—
Washington .....	413	307	92	1	13	4
Wyoming .....	102	90	12	—	—	—

TABLE 3.2—Continued

U.S. CIVIL AND JOINT-USE AIRPORTS, HELIPORTS, STOLPORTS, AND SEAPLANE BASES, AND REPORTED ABANDONMENTS ON RECORD, BY  
FAA REGION AND STATE DECEMBER 31, 1988

FAA Region and State	Total Aircraft Facilities	Airports	Heliports	Stolports	Seaplane Bases	Reported Abandonments During Year
Southern—Total.....	2,293	1,718	522	22	31	8
Alabama.....	201	157	43	—	1	2
Florida.....	669	439	204	5	21	1
Georgia.....	352	263	85	4	—	1
Kentucky.....	148	117	30	1	—	—
Mississippi.....	205	177	28	—	—	—
North Carolina.....	322	271	46	4	1	3
Puerto Rico.....	28	17	10	—	—	—
South Carolina.....	152	131	20	—	1	—
Tennessee.....	208	144	53	8	3	1
Virgin Islands.....	8	2	3	—	3	—
Southwest—Total.....	2,833	2,097	714	8	14	66
Arkansas.....	195	157	38	—	—	1
Louisiana.....	385	195	178	—	12	8
New Mexico.....	167	150	16	—	1	9
Oklahoma.....	399	315	83	—	1	9
Texas.....	1,687	1,280	399	8	—	39
Western-Pacific—Total.....	1,392	889	486	5	12	41
Arizona.....	272	177	94	1	—	13
California.....	907	548	344	3	12	21
Hawaii.....	54	35	19	—	—	3
Nevada.....	127	99	27	1	—	4
South Pacific <sup>2</sup> .....	32	30	2	—	—	—

<sup>1</sup> Excludes Puerto Rico, Virgin Islands, and South Pacific.

<sup>2</sup> American Samoa, Guam and Trust Territories.

TABLE 3.3

U.S. CIVIL AND JOINT-USE AIRPORTS, HELIPORTS, STOLPORTS, AND SEAPLANE BASES, ON RECORD, BY TYPE OF OWNERSHIP DECEMBER 31, 1988

FAA Region and State	Total Facilities	By Ownership		Paved Facilities		Unpaved Facilities	
		Private	Public	Lighted	Not Lighted	Lighted	Not Lighted
<b>TOTAL.....</b>	<b>17,327</b>	<b>12,284</b>	<b>5,043</b>	<b>3,966</b>	<b>3,463</b>	<b>924</b>	<b>8,974</b>
United States—Total <sup>1</sup> .....	17,259	12,264	4,995	3,942	3,444	923	8,950
Alaskan—Total.....	603	201	402	46	14	96	447
Central—Total.....	1,417	943	474	405	157	122	733
Iowa.....	274	152	122	99	34	48	93
Kansas.....	390	259	131	110	21	30	229
Missouri.....	431	305	126	118	79	25	209
Nebraska.....	322	227	95	78	23	19	202
Eastern—Total.....	2,192	1,853	339	411	502	114	1,165
Delaware.....	34	30	4	7	6	6	15
District of Columbia.....	16	9	7	4	9	—	3
Maryland.....	157	136	21	36	32	10	79
New Jersey.....	317	275	42	44	88	16	169
New York.....	506	421	85	98	106	35	267
Pennsylvania.....	756	679	77	115	171	34	436
Virginia.....	313	239	74	77	64	11	161
West Virginia.....	93	64	29	30	26	2	35
Great Lakes—Total.....	4,190	3,289	901	793	482	314	2,601
Illinois.....	924	812	112	112	137	54	621
Indiana.....	545	457	88	89	65	34	357
Michigan.....	434	300	134	127	49	47	211
Minnesota.....	475	327	148	100	23	39	313
North Dakota.....	486	387	99	67	9	32	378
Ohio.....	714	579	135	142	130	52	390
South Dakota.....	155	79	76	50	7	26	72
Wisconsin.....	457	348	109	106	62	30	259
New England—Total.....	595	457	138	130	168	10	287
Connecticut.....	128	112	16	27	51	2	48
Maine.....	146	101	45	30	17	2	97
Massachusetts.....	170	137	33	40	61	3	66
New Hampshire.....	67	52	15	17	23	2	25
Rhode Island.....	23	14	9	7	9	—	7
Vermont.....	61	41	20	9	7	1	44
Northwest Mountain—Total.....	1,812	1,132	680	438	350	83	941
Colorado.....	396	302	94	83	82	16	215
Idaho.....	209	80	129	42	34	1	132
Montana.....	212	91	121	67	25	17	103
Oregon.....	367	268	99	67	79	15	206
Utah.....	113	54	59	42	30	1	40
Washington.....	413	284	129	104	87	30	192
Wyoming.....	102	53	49	33	13	3	53

TABLE 3.3—Continued

U.S. CIVIL AND JOINT-USE AIRPORTS, HELIPORTS, STOLPORTS, AND SEAPLANE BASES, ON RECORD, BY TYPE OF OWNERSHIP DECEMBER 31, 1988

FAA Region and State	Total Facilities	By Ownership		Paved Facilities		Unpaved Facilities	
		Private	Public	Lighted	Not Lighted	Lighted	Not Lighted
Southern—Total .....	2,293	1,480	813	690	464	99	1,040
Alabama.....	201	102	99	90	43	8	60
Florida.....	669	514	155	123	159	31	356
Georgia.....	352	222	130	106	73	11	162
Kentucky.....	148	78	70	58	36	3	51
Mississippi.....	205	116	89	74	36	9	86
North Carolina.....	322	225	97	92	42	19	169
Puerto Rico.....	28	13	15	11	12	—	5
South Carolina.....	152	87	65	56	17	9	70
Tennessee.....	208	121	87	78	45	8	77
Virgin Islands.....	8	2	6	2	1	1	4
Southwest—Total .....	2,833	2,049	784	701	762	65	1,305
Arkansas.....	195	92	103	83	45	4	63
Louisiana.....	385	289	96	72	150	2	161
New Mexico.....	167	92	75	51	27	3	86
Oklahoma.....	399	238	161	119	86	14	180
Texas.....	1,687	1,338	349	376	454	42	815
Western-Pacific—Total .....	1,392	880	512	352	564	21	455
Arizona.....	272	182	90	65	88	3	116
California.....	907	593	314	236	410	14	247
Hawaii.....	54	36	18	12	30	1	11
Nevada.....	127	64	63	28	30	3	66
South Pacific <sup>2</sup> .....	32	5	27	11	6	—	15

<sup>1</sup> Excludes Puerto Rico, Virgin Islands, and South Pacific.<sup>2</sup> American Samoa, Guam and Trust Territories.

TABLE 3.4

U S CIVIL AND JOINT-USE AIRPORTS, HELIPORTS, STOLPORTS, AND SEAPLANE BASES ON RECORD, BY LENGTH OF LONGEST RUNWAY, BY FAA REGION AND STATE DECEMBER 31, 1988

FAA Region and State	Total	Under 3000	3000- 3999	4000- 4999	5000- 5999	6000- 6999	7000- 7999	8000- 8999	9000- 9999	10,000- Over
<b>TOTAL</b>	<b>17,327</b>	<b>11,613</b>	<b>2,677</b>	<b>1,222</b>	<b>879</b>	<b>334</b>	<b>177</b>	<b>123</b>	<b>68</b>	<b>234</b>
U.S.—Total <sup>1</sup>	17,259	11,581	2,668	1,218	874	327	172	122	66	231
Alaskan—Total	603	321	80	55	57	19	10	6	6	49
Central—Total	1,417	991	249	91	38	17	12	6	3	10
Iowa	274	182	46	32	5	5	1	2	1	—
Kansas	390	272	70	20	17	2	6	—	1	3
Missouri	431	317	72	16	9	6	3	1	1	6
Nebraska	322	220	61	23	7	4	2	3	1	1
Eastern—Total	2,192	1,768	193	68	77	29	15	8	10	24
Delaware	34	26	4	2	1	—	1	—	—	—
District of Columbia	16	14	—	—	—	1	—	—	—	1
Maryland	157	129	15	6	4	—	1	1	1	—
New Jersey	317	270	24	5	9	2	2	1	1	3
New York	506	381	55	14	19	10	4	2	4	17
Pennsylvania	756	659	44	17	17	7	5	1	3	3
Virginia	313	235	37	19	13	5	—	3	1	—
West Virginia	93	54	14	5	14	4	2	—	—	—
Great Lakes—Total	4,190	3,149	562	198	118	61	28	24	9	41
Illinois	924	806	61	23	15	9	3	4	1	2
Indiana	545	436	59	20	16	4	2	1	1	6
Michigan	434	291	72	27	20	11	5	1	1	6
Minnesota	475	280	85	32	27	17	9	5	—	20
N. Dakota	486	377	77	20	5	3	2	1	1	—
Ohio	714	554	87	39	18	6	2	3	3	2
S. Dakota	155	73	53	16	5	5	1	2	—	—
Wisconsin	457	332	68	21	12	6	4	7	2	5
New England—Total	595	431	53	32	38	10	9	3	2	17
Connecticut	128	110	5	6	4	—	1	—	1	1
Maine	146	77	19	13	13	5	3	2	—	14
Massachusetts	170	128	17	6	11	3	1	1	1	—
New Hampshire	67	49	6	3	6	2	1	—	—	—
Rhode Island	23	17	1	2	1	—	2	—	—	—
Vermont	61	50	5	2	3	—	1	—	—	—
Northwest Mountain—Total	1,812	1,075	311	180	120	47	23	14	16	26
Colorado	396	242	57	41	25	11	5	5	4	6
Idaho	209	107	47	34	11	2	1	1	3	3
Montana	212	81	74	31	15	1	—	2	4	4
Oregon	367	273	44	19	20	7	1	1	—	2
Utah	113	33	20	23	19	9	5	2	1	1
Washington	413	308	50	15	19	6	4	—	3	8
Wyoming	102	31	19	17	11	—	7	3	1	2

TABLE 3.4—Continued

U.S. CIVIL AND JOINT-USE AIRPORTS, HELIPORTS, STOLPORTS, AND SEAPLANE BASES ON RECORD, BY LENGTH OF LONGEST RUNWAY, BY FAA REGION AND STATE DECEMBER 31, 1988

FAA Region and State	Total	Under 3000	3000– 3999	4000– 4999	5000– 5999	6000– 6999	7000– 7999	8000– 8999	9000– 9999	10,000– Over
Southern—Total .....	2,293	1,352	447	210	157	42	25	29	8	23
Alabama.....	201	105	36	31	12	6	2	5	2	2
Florida.....	669	421	114	52	36	12	11	11	1	11
Georgia.....	352	214	72	24	31	6	—	3	1	1
Kentucky.....	148	96	15	18	12	4	1	—	1	1
Mississippi.....	205	97	71	16	11	4	1	4	1	—
N. Carolina.....	322	200	63	31	14	4	5	1	—	4
Puerto Rico.....	28	17	4	2	2	1	—	—	—	2
S. Carolina.....	152	78	40	11	18	2	1	2	—	—
Tennessee.....	208	120	32	25	20	3	2	3	2	1
Virgin Islands.....	8	4	--	—	1	—	2	—	—	1
Southwest—Total .....	2,833	1,675	570	264	186	59	31	19	6	23
Arkansas.....	195	100	47	22	16	8	1	1	—	—
Louisiana.....	385	271	53	17	15	6	2	2	1	8
New Mexico.....	167	41	26	32	38	10	10	6	—	4
Oklahoma.....	399	261	81	27	17	5	3	1	1	3
Texas.....	1,687	1,002	353	166	100	30	15	9	4	8
Western-Pacific—Total .....	1,392	851	212	124	88	50	24	14	8	21
Arizona.....	272	145	38	43	22	11	6	5	—	2
California.....	907	608	149	57	38	22	8	6	4	15
Hawaii.....	54	41	4	2	2	3	—	—	1	1
Nevada.....	127	46	16	20	24	8	7	2	1	3
South Pacific <sup>2</sup> .....	32	11	5	2	2	6	3	1	2	—

<sup>1</sup> Excludes Puerto Rico, Virgin Islands, and South Pacific.<sup>2</sup> American Samoa, Guam, and Trust Territories.

TABLE 3.5

U S CIVIL AND JOINT-USE AIRPORTS, HELIPORTS, STOLPORTS, AND SEAPLANE BASES ON RECORD, BY FAA REGION AND STATE AND OTHER AREAS DECEMBER 31, 1979 - 1988

FAA Region and State	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
TOTAL .....	14,746	15,161	15,476	15,831	16,029	16,079	16,318	16,582	17,015	17,327
United States—Total <sup>1</sup> .....	14,693	15,107	15,422	15,778	15,966	16,013	16,252	16,516	16,949	17,259
Alaskan—Total .....	734	731	689	666	615	609	610	614	593	603
Central—Total .....	1,325	1,340	1,373	1,379	1,425	1,430	1,437	1,421	1,437	1,417
Iowa .....	258	267	270	273	280	282	278	279	277	274
Kansas .....	374	377	376	377	380	384	385	382	389	390
Missouri .....	374	377	393	398	419	423	437	429	440	431
Nebraska .....	319	319	334	331	346	341	337	331	331	322
Eastern—Total .....	1,961	1,971	2,003	2,011	2,051	2,048	2,076	2,134	2,175	2,192
Delaware .....	35	36	37	35	37	36	36	37	35	34
District of Columbia .....	17	18	16	16	15	15	15	15	15	16
Maryland .....	144	150	145	147	147	149	151	155	154	157
New Jersey .....	266	265	271	280	291	294	295	286	317	317
New York .....	482	471	486	486	476	480	485	495	507	506
Pennsylvania .....	684	694	698	696	720	708	719	755	744	756
Virginia .....	256	260	260	262	270	274	282	299	308	313
West Virginia .....	76	77	90	89	94	92	93	92	95	93
Great Lakes—Total .....	3,439	3,641	3,813	4,023	4,031	4,027	4,060	4,071	4,135	4,190
Illinois .....	891	942	929	908	909	901	888	894	913	924
Indiana .....	325	347	365	490	498	495	523	518	530	545
Michigan .....	413	419	417	421	422	427	422	419	431	5434
Minnesota .....	468	491	493	498	492	480	479	472	477	475
North Dakota .....	221	229	365	442	451	457	484	499	487	486
Ohio .....	586	652	674	681	678	689	690	697	716	714
South Dakota .....	153	159	162	163	165	165	164	161	158	155
Wisconsin .....	382	402	408	420	416	413	410	411	423	457
New England—Total .....	536	542	534	521	513	509	515	536	568	595
Connecticut .....	106	108	105	105	105	104	108	112	120	128
Maine .....	160	162	158	147	146	143	144	144	144	146
Massachusetts .....	137	138	136	134	130	130	131	141	158	170
New Hampshire .....	52	52	52	54	54	54	53	58	62	67
Rhode Island .....	20	18	18	18	18	18	18	20	22	23
Vermont .....	61	64	65	63	60	60	61	61	62	61
Northwest Mountain—Total .....	1,542	1,593	1,586	1,619	1,636	1,626	1,662	1,685	1,737	1,812
Colorado .....	301	307	312	326	321	315	321	323	333	396
Idaho .....	194	197	196	197	196	198	202	205	207	209
Montana .....	177	185	190	191	197	194	200	203	210	212
Oregon .....	308	323	318	332	341	336	342	351	366	367
Utah .....	100	104	102	96	95	97	101	105	109	113
Washington .....	365	371	363	372	382	385	395	396	408	413
Wyoming .....	97	106	105	105	104	101	101	102	104	102

TABLE 3.5—Continued

U.S. CIVIL AND JOINT-USE AIRPORTS, HELIPORTS, STOLPORTS, AND SEAPLANE BASES ON RECORD, BY FAA REGION AND STATE AND OTHER AREAS DECEMBER 31, 1979 - 1988

FAA Region and State	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Southern—Total .....	1,765	1,851	1,895	1,919	1,947	1,961	2,002	2,099	2,165	2,293
Alabama.....	156	163	165	167	169	173	174	183	193	201
Florida.....	458	485	506	529	541	542	557	594	607	669
Georgia.....	283	288	293	295	302	301	304	325	334	352
Kentucky.....	112	128	125	127	127	129	134	139	139	148
Mississippi.....	165	171	180	180	181	180	188	190	194	205
North Carolina.....	271	285	286	280	284	288	292	307	316	322
Puerto Rico.....	32	32	33	32	31	31	31	30	27	28
South Carolina.....	127	132	137	135	137	139	139	137	146	152
Tennessee.....	155	160	164	168	169	171	176	186	201	208
Virgin Islands.....	6	7	6	6	6	7	7	8	8	8
Southwest—Total .....	2,227	2,263	2,333	2,425	2,506	2,541	2,624	2,661	2,818	2,833
Arkansas.....	167	156	157	157	160	156	163	167	173	195
Louisiana.....	291	289	292	303	311	317	353	357	381	385
New Mexico.....	145	149	156	159	160	167	169	168	174	167
Oklahoma.....	292	294	297	322	332	335	336	341	403	399
Texas.....	1,337	1,375	1,431	1,484	1,543	1,566	1,603	1,628	1,687	1,687
Western-Pacific—Total .....	1,217	1,229	1,250	1,268	1,305	1,328	1,332	1,361	1,387	1,392
Arizona.....	210	216	224	233	240	244	246	262	265	272
California.....	819	825	832	843	862	881	887	895	909	907
Hawaii.....	54	50	51	49	51	51	50	51	54	54
Nevada.....	119	123	128	128	126	124	121	125	128	127
South Pacific <sup>2</sup> .....	11	15	15	15	26	28	28	28	31	32

<sup>1</sup> Excludes Puerto Rico, Virgin Islands, and South Pacific.

<sup>2</sup> American Samoa, Guam, and Trust Territories.

**TABLE 3 6**  
**AIRPORT IMPROVEMENT PROGRAM. FISCAL YEAR 1988 (Excludes Amendment To Grants) (Thousands of Dollars)**

FAA Region and State	Primary		Commercial		Reliever		General Aviation		System Planning	
	Total Federal Funds	Total Projects	Total Federal Funds	Total Project						
<b>TOTAL</b> .....	896,819.4	521	47,082.1	76	138,285.6	157	189,024.0	448	7,057.8	49
U. S.—Total <sup>1</sup> .....	881,778.0	504	40,298.9	74	138,285.6	157	189,024.0	448	7,057.8	49
Alaskan—Total.....	11,485.7	9	1,987.5	4	—	—	21,701.6	17	261.0	1
Central—Total.....	38,568.5	22	3,711.8	5	10,817.4	9	11,200.1	26	399.7	3
Iowa.....	6,768.0	7	—	—	—	—	2,533.3	7	190.8	1
Kansas.....	2,600.3	3	3,531.8	4	93.9	1	3,211.5	3	28.9	1
Missouri.....	26,279.2	8	180.0	1	10,723.5	8	3,285.9	10	180.0	1
Nebraska.....	2,921.0	4	—	—	—	—	2,169.4	6	—	—
Eastern—Total.....	138,359.2	78	5,125.5	13	23,733.8	36	27,368.2	68	1,521.3	12
Delaware.....	258.6	1	—	—	—	—	—	—	—	—
District of Columbia.....	—	—	—	—	—	—	—	—	148.5	1
Maryland.....	9,889.4	6	70.0	1	3,707.6	3	4,336.2	6	—	—
New Jersey.....	11,782.0	5	877.8	1	6,080.2	7	1,943.8	5	—	—
New York.....	52,143.0	26	2,099.2	7	4,123.5	9	7,948.7	23	587.5	7
Pennsylvania.....	44,359.0	23	2,033.5	2	7,624.0	11	5,798.1	4	611.3	3
Virginia.....	17,809.6	11	81.0	1	2,198.5	6	5,648.7	13	174.0	1
West Virginia.....	2,117.6	6	54.0	1	—	—	1,662.7	7	—	—
Great Lakes—Total.....	152,572.5	94	9,445.7	20	31,257.4	32	29,786.2	60	1,300.0	9
Illinois.....	41,673.1	18	3,093.1	5	15,101.1	9	5,412.9	10	209.0	1
Indiana.....	36,141.1	20	775.7	1	2,092.2	5	2,897.8	8	179.0	1
Michigan.....	13,706.9	13	1,509.6	4	7,146.8	6	6,732.9	11	209.0	1
Minnesota.....	10,992.3	5	480.0	1	996.9	1	3,102.2	2	120.0	1
N. Dakota.....	4,074.1	7	896.5	2	—	—	1,655.4	4	125.9	1
Ohio.....	32,283.7	14	250.0	1	4,043.0	7	5,283.5	12	190.0	2
S. Dakota.....	2,634.2	4	1,900.8	5	—	—	1,798.6	7	74.7	1
Wisconsin.....	11,067.1	13	540.0	1	1,877.4	4	2,902.9	6	192.4	1
New England—Total.....	22,302.9	21	3,185.4	2	3,997.0	7	3,488.5	11	—	—
Connecticut.....	722.1	1	—	—	1,151.1	1	—	—	—	—
Maine.....	1,779.3	4	3,015.0	1	—	—	960.8	2	—	—
Massachusetts.....	15,463.7	11	—	—	2,580.6	4	1,927.1	6	—	—
New Hampshire.....	1,295.1	2	—	—	265.3	2	470.7	2	—	—
Rhode Island.....	1,168.2	1	—	—	—	—	129.9	1	—	—
Vermont.....	1,874.5	2	170.4	1	—	—	—	—	—	—
Northwest Mountain—Total.....	54,885.2	54	3,106.7	12	9,842.9	13	23,113.8	64	829.1	11
Colorado.....	8,216.0	10	1,385.8	3	4,040.9	4	6,728.2	17	206.4	4
Idaho.....	1,398.1	4	276.0	1	585.0	1	2,013.1	3	—	—
Montana.....	4,870.3	7	—	—	—	—	3,299.3	11	—	—
Oregon.....	5,578.7	4	374.0	1	1,504.4	2	3,756.7	13	105.5	1
Utah.....	9,889.0	6	130.0	2	1,125.0	2	2,229.0	6	192.2	3
Washington.....	21,169.3	12	130.4	1	2,587.6	2,928.2	8	292.8	2	—
Wyoming.....	3,763.8	11	810.5	4	—	—	2,159.3	6	32.2	1

**TABLE 3.6—Continued**  
**AIRPORT IMPROVEMENT PROGRAM: FISCAL YEAR 1988 (Excludes Amendment to Grants) (Thousands of Dollars)**

FAA Region and State	Primary		Commercial		Reliever		General Aviation		System Planning	
	Total Federal Funds	Total Projects	Total Federal Funds	Total Project						
Southern—Total .....	224,424.7	114	7,774.8	6	17,825.1	27	28,554.1	101	795.0	3
Alabama .....	8,911.7	12	—	—	109.7	1	2,691.4	6	360.0	1
Florida .....	76,429.9	37	1,298.4	2	4,579.5	11	4,768.3	23	360.0	1
Georgia .....	29,528.1	11	—	—	10,627.1	10	3,175.4	16	75.0	1
Kentucky .....	26,422.9	9	—	—	—	—	3,146.8	17	—	—
Mississippi .....	2,724.7	7	645.5	1	—	—	4,093.4	11	—	—
N. Carolina .....	17,324.5	12	573.5	1	1,428.2	2	3,303.2	7	—	—
Puerto Rico .....	4,552.3	6	5,032.4	1	—	—	—	—	—	—
S. Carolina .....	14,512.7	7	—	—	730.6	2	4,065.4	12	—	—
Tennessee .....	37,335.0	10	225.0	1	350.0	1	3,310.2	9	—	—
Virgin Island .....	6,682.9	3	—	—	—	—	—	—	—	—
Southwest—Total .....	105,686.8	60	.099.5	6	21,042.3	13	25,190.1	50	999.9	5
Arkansas .....	9,414.3	6	—	—	3,252.5	3	3,647.9	9	—	—
Louisiana .....	18,540.3	15	—	—	—	—	2,380.9	4	284.6	2
New Mexico .....	7,930.7	3	3,050.6	5	1,223.6	1	4,158.5	7	103.0	1
Oklahoma .....	5,589.5	5	48.9	1	117.0	2	3,499.2	8	—	—
Texas .....	64,212.0	31	—	—	16,449.2	7	11,503.6	22	612.3	2
Western-Pacific—Total .....	148,533.7	69	9,645.3	8	19,769.7	20	18,621.3	51	951.7	5
Arizona .....	19,138.0	8	7,355.0	5	4,137.4	4	4,297.2	11	106.9	1
California .....	88,934.6	40	538.6	2	11,969.5	14	11,494.9	33	812.0	3
Hawaii .....	20,38.0	8	—	—	—	—	312.7	1	—	—
Nevada .....	16,316.9	5	—	—	3,662.8	2	2,516.5	6	32.8	1
South-Pacific <sup>2</sup> .....	3,806.2	8	1,750.8	1	—	—	—	—	—	—

<sup>1</sup> Excludes Puerto Rico, Virgin Islands, and South Pacific.

<sup>2</sup> American Samoa, Guam, North Mariana and Trust Territories.

## IV. AIRPORT ACTIVITY OF CERTIFIED ROUTE AIR CARRIERS

The data presented in this chapter were obtained from information reported quarterly to the Department of Transportation's Research and Special Programs Administration (RSPA) by the large scheduled certificated air carriers on Schedule T-3(a)(b)(c), RSPA Form 41, Uniform System of Accounts and Reports for Large Certificated Air Carriers. These statistics summarize domestic and international, scheduled and non scheduled service revenue; passenger enplanements; aircraft departures; and tons of freight, express, and mail enplaned at certificated points in the 50 States, the District of Columbia, other U.S. areas, and foreign countries served by the carriers.

This chapter covers only the large scheduled certificated air carriers; \* and thus excludes the charter only, small certificated, commuter, intrastate and foreign-flag air carriers. Note that this chapter covers only a subset of the carriers covered by Chapter VI-U.S. Certificated Air Carriers- Operating Data.

The activity information in Tables 4.5-4.9 is presented by "hubs". Air traffic hubs are geographical areas, and are based on the percentage of total passengers enplaned in the area. A hub may have more than one airport in it. This definition of hub should not be confused with the definition being used by the airlines in describing their "hub and spoke" structures. The hubs constitute a primary focal point for the transportation research programs of the FAA, and the analyses of individual cities within an area are treated in relationship to the entire area.

Individual communities fall into four hub classifications as determined by each community's percentage of the total enplaned revenue passengers in all services and all operations of U.S. certificated route air carriers within the 50 States, the District of Columbia, and other U.S. areas. Classifications in this issues are based on 431,416,133 total enplaned revenue passengers.

The percentage and number of enplaned passengers in the hub classifications for 12 months ending December 31, 1988 are:

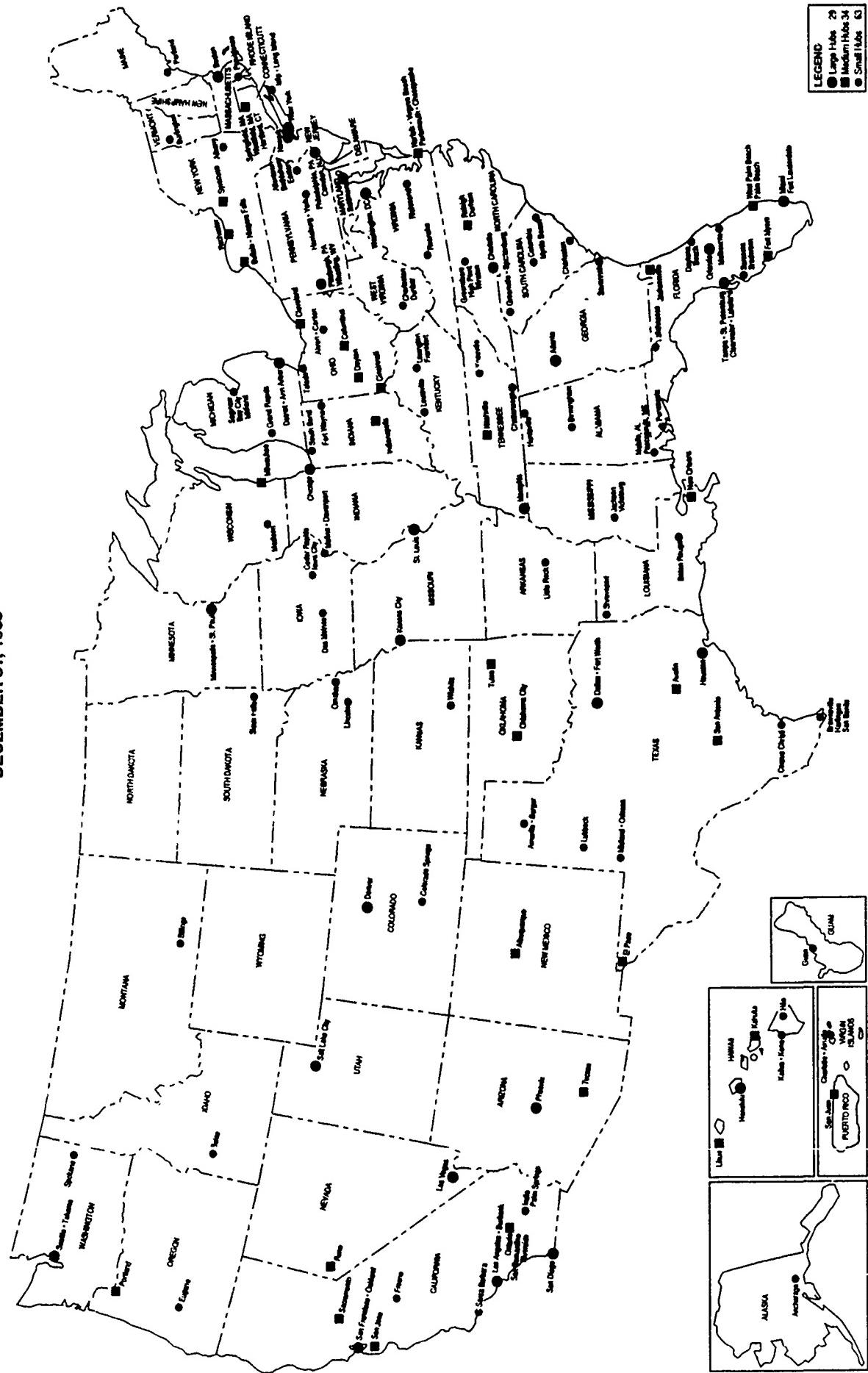
Hub Classification	Percentage of Total Enplaned Passengers	Number of Enplaned Passengers
Large (L)	1.00 or more	4,314,161 or more
Medium (M)	0.25 to 0.99	1,078,540 to 4,314,161
Small (S)	0.05 to 0.24	215,708 to 1,078,540
Nonhub (N)	less than 0.05	less than 215,708

For the 12-month period ending December 31, 1988, there were 125 air traffic hubs. These hubs represented 27.0 percent of the 463 air traffic hubs and non hubs in the 50 States, the District of Columbia, and other U.S. areas receiving air carrier service during the period. The dominance of the hubs in the air traffic patterns is brought out by the fact that of the 431,416,133 passenger enplanements during the period, 97.7 percent (421,683,314) were recorded at the 125 hubs, while the non hubs accounted for only 2.3 percent (9,732,819). Of the 97.7 percent of the passenger enplanements recorded at the hubs, the 29 large hubs accounted for 74.6 percent, the 32 medium hubs accounted for 15.9 percent, and the 64 small hubs accounted for 7.3 percent.

\* Large Certificated Air Carrier-carrier holding a certificate issued under Section 401 of the Federal Aviation Act of 1958 and operating aircraft designed to have a maximum passenger seating capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds or conducting international operations

# Air Traffic Hubs

DECEMBER 31, 1988



**TABLE 4.1**  
**LARGE SCHEDULED CERTIFICATED AIR CARRIERS AS OF DECEMBER 31, 1988**

Aerial Transit	MGM Grand
Air America	Mid Pacific Airlines
Air California	Midway Airlines
Air Wisconsin	Midwest Express Airlines
Alaska Airlines	Northern Air Cargo
Aloha Airlines	Northwest Airlines
America West Airlines	Pacific Southwest Airlines
American Airlines	Pan American World Airways
American Trans Air	People Express Airlines
Arrow Air	Piedmont Aviation
Aspen Airways	Presidential Airways
Braniff	Reeve Aleutian Airways
Britt Airways	Rosenbalm
Challenge Air Transport	Southwest Airlines
Continental Air Lines	Suncoast
Delta Air Lines	Sunworld International Airlines
Eastern Air Lines	Tower Air
Federal Express	Transtar Airline
Florida Express	Trans World Airlines
Flying Tiger Line	United Air Lines
Hawaiian Airlines	U.S. Air
Horizon Air	Western Air Lines
Jet America Airlines	Zantop International Airlines
Markair	

TABLE 4.2 \*

AMERICAN FLAG AIRLINE TRAFFIC ENPLANED—SYSTEM TOTAL LARGE SCHEDULED CERTIFICATED AIR CARRIERS SCHEDULED AND NONSCHEDULED OPERATIONS 1979 - 1988

Year	Enplaned Passengers			Air Carrier Aircraft Departures	Tons of Enplaned Mail	Tons of Enplaned Cargo
	Total	Domestic	International			
1979.....	314,456,936	289,900,853	24,554,083	5,307,981	1,131,534.5	3,584,251.1
1980.....	296,860,910	272,786,424	24,074,482	5,332,898	1,583,114.3	3,979,762.0
1981.....	281,379,313	260,937,772	20,442,251	5,136,293	1,220,857.0	3,158,342.5
1982.....	292,538,822	272,448,76	19,789,450	4,921,628	1,247,351.2	2,951,619.9
1983.....	319,886,291	297,484,708	22,401,583	5,043,040	1,293,103.6	3,219,495.8
1984.....	344,831,718	321,136,409	23,695,309	5,449,541	1,389,154.7	3,579,216.1
1985.....	381,108,118	356,103,027	25,005,091	5,696,217	1,486,900.6	3,415,759.7
1986.....	418,563,577	393,267,950	25,295,582	6,401,599	2,066,173.6	4,718,544.1
1987.....	448,913,726	417,869,993	31,043,733	6,640,400	1,621,734.2	5,073,264.9
1988.....	456,026,372	420,326,215	35,700,157	6,724,445	1,717,738.7	5,860,039.0

\* Includes operations of certificated all-cargo carriers.  
Source: RSPA-FAA Airport Activity Statistics of Certificated Route Air Carriers.

TABLE 4.3 \*

AMERICAN FLAG AIRLINE TRAFFIC ENPLANED—50 STATES LARGE SCHEDULED CERTIFICATED AIR CARRIERS SCHEDULED AND NONSCHEDULED OPERATIONS 1979 - 1988

Year	Enplaned Passengers			Air Carrier Aircraft Departures	Tons of Enplaned Mail	Tons of Enplaned Cargo
	Total	Domestic	International			
1979.....	296,132,661	286,880,624	9,252,037	5,094,736	1,071,071.8	3,122,796.4
1980.....	278,957,991	269,585,572	9,372,419	5,131,204	1,520,132.5	3,504,028.3
1981.....	263,684,851	256,007,148	7,677,703	4,940,700	1,160,808.6	2,643,964.8
1982.....	275,540,455	268,118,227	7,422,228	4,716,900	1,185,857.7	2,389,304.9
1983.....	301,347,773	292,962,603	8,385,170	4,825,467	1,227,581.1	2,558,106.8
1984.....	325,233,918	316,280,548	8,953,370	5,232,782	1,310,016.9	2,749,633.9
1985.....	360,710,517	351,346,625	9,363,892	5,476,633	1,416,643.1	2,548,025.1
1986.....	396,961,967	387,599,481	9,362,486	6,153,247	1,980,248.3	3,728,296.2
1987.....	422,747,715	411,311,165	11,436,550	6,372,793	1,534,719.8	3,948,060.7
1988.....	426,937,914	413,790,076	13,147,838	6,426,421	1,626,030.8	4,550,772.8

\* Includes operations of certificated all-cargo carriers.  
Source: RSPA-FAA Airport Activity Statistics of Certificated Route Air Carriers.

TABLE 4.4 \*

AMERICAN FLAG AIRLINE TRAFFIC ENPLANED—U.S. TERRITORIES LARGE SCHEDULED CERTIFIED AIR CARRIERS SCHEDULED AND NONSCHEDULED OPERATIONS 1979 – 1988

Year	Enplaned Passengers			Air Carrier Aircraft Departures	Tons of Enplaned Mail	Tons of Enplaned Cargo
	Total	Domestic	International			
1979.....	2,901,802	3,240	2,898,562	31,388	5,660.7	60,788.1
1980.....	2,450,861	454	2,450,407	25,644	5,992.8	58,159.1
1981.....	2,221,106	1,807,670	413,436	21,080	6,135.3	56,561.2
1982.....	2,210,575	1,718,635	491,940	28,414	5,770.7	56,612.0
1983.....	2,372,861	1,788,115	584,746	34,942	6,035.8	68,088.1
1984.....	2,537,084	1,888,024	649,060	34,196	6,746.3	69,167.6
1985.....	2,630,980	1,940,298	690,682	29,026	6,799.9	53,001.9
1986.....	3,046,033	2,249,694	796,339	38,960	6,856.5	62,206.8
1987.....	4,068,330	2,940,763	1,127,567	39,690	7,389.6	66,511.0
1988.....	4,478,219	3,081,000	1,397,219	43,435	8,143.1	75,496.4

\* Includes operations of certificated all-cargo carriers.

Source: RSPA-FAA Airport Activity Statistics of Certificated Route Air Carriers.

TABLE 4.5 \*

AMERICAN FLAG AIRLINE TRAFFIC ENPLANED—FOREIGN COUNTRIES LARGE SCHEDULED CERTIFIED AIR CARRIERS SCHEDULED AND NONSCHEDULED OPERATIONS 1979 – 1988

Year	Enplaned Passengers			Air Carrier Aircraft Departures	Tons of Enplaned Mail	Tons of Enplaned Cargo
	Total	Domestic	International			
1979.....	15,422,473	3,018,989	12,403,484	181,857	54,902.0	400,667.0
1980.....	15,452,058	3,200,402	12,251,656	176,050	56,989.0	417,574.6
1981.....	15,473,356	3,122,244	12,351,112	174,513	53,913.1	457,816.5
1982.....	14,787,796	2,912,514	11,875,282	176,314	55,722.8	505,703.0
1983.....	16,165,657	2,733,990	13,431,667	182,631	59,486.7	593,300.9
1984.....	17,060,716	2,967,837	14,092,879	182,563	72,391.5	760,414.6
1985.....	17,766,621	2,816,104	14,950,517	190,558	63,477.6	814,732.7
1986.....	18,555,577	3,418,820	15,136,757	209,392	78,068.8	928,041.1
1987.....	22,097,681	3,618,065	18,479,616	227,917	79,624.7	1,058,693.2
1988.....	24,610,239	3,455,139	21,155,100	254,589	83,564.8	1,233,769.8

\* Includes operations of certificated all-cargo carriers.

Source: RSPA-FAA Airport Activity Statistics of Certificated Route Air Carriers.

TABLE 4.6

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, BY CARRIER GROUP, AND BY AIR CARRIER 12 MONTHS ENDED DECEMBER 31, 1988

CARRIER GROUP AIR CARRIER	OPERATION	SERV. ICE	AIRCRAFT DEPARTURES			EN- PLANED PASSENGERS	ENPLANED REVENUE TONS			
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL	FOREIGN MAIL
<b>MAJORS</b>										
AMERICAN .....	DOMESTIC.....	S NS AS	726805 132 726937	742872 742872	726462 726462	60104251 10210 60114461	226824.83 226824.83		149096.58 1020.00 150116.58	1528.90
	INTERNATIONAL.....	S NS AS	36820 13 36833	37265 37265	36768 36768	4191758 1678 4193436	69504.48 69504.48		9668.44 1000.00 10668.44	68.29
	TOTAL.....	S NS AS	763625 145 763770	780137 780137	763230 763230	64296009 11888 64307897	296329.31 296329.31		158765.02 2020.00 160785.02	1597.19
CONTINENTAL.....	DOMESTIC.....	S NS AS	484507 1846 486353	496762 496762	482094 482094	33565767 156858 33722625	129891.26 129891.26	1237.01 1237.01	107044.91 .23 107045.14	1.75 .30
	INTERNATIONAL.....	S	36527	35627	35164	4070104	79113.84	178.25	3907.24	.12
	TOTAL.....	S NS AS	521034 1846 522880	532389 532389	517258 517258	37635871 156858 37792729	209007.10 209007.10	1415.26 1415.26	110952.15 .23 110952.38	1.87
DELTA.....	DOMESTIC.....	S NS AS	783782 596 784378	790651 790651	782803 782803	57696867 30831 57727698	320300.30 320300.30		261536.40	3.04
	INTERNATIONAL.....	S NS AS	18406 23 18429	18414 18414	18314 18314	2272478 3540 2276018	31622.90 31622.90		1345.76	1243.15
	TOTAL.....	S NS AS	802188 619 802807	809065 809065	801117 801117	59969345 34371 60003716	351923.20 351923.20		262882.16	1246.19
EASTERN.....	DOMESTIC.....	S NS AS	417529 686 418215	425832 425832	410261 410261	32469587 32071 32501658	95217.28 95217.28		144637.58	995.11
	INTERNATIONAL.....	S NS AS	31827 280 32107	32069 32069	31384 31384	3117598 18149 3135747	29648.70 29648.70		3182.56	134.65
	TOTAL.....	S NS AS	449356 966 450322	457901 457901	441645 441645	35587185 50220 35637405	124865.98 124865.98		147820.14	1129.76
									147820.14	3.62
FEDERAL EXPRESS .....	DOMESTIC.....	S NS AS	163395 227 163622	163395 163395	163395 163395		1375138.10 5575.48 1380713.58			
	INTERNATIONAL.....	S NS AS	12452 109 12561	12453 12453	12453 12453	1	45777.91 4856.75 50634.66			
	TOTAL.....	S NS AS	175847 336 176183	175848 175848	175848 175848	1	1420916.01 10432.23 1431348.24			
FLYING TIGER.....	DOMESTIC.....	S NS AS	21808 50 21858	22491 22491	21199 21199		679366.97 2552.86 681919.83	21526.35	5788.86	
								21526.35	5788.86	

TABLE 4.6—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, BY CARRIER GROUP, AND BY AIR CARRIER 12 MONTHS ENDED DECEMBER 31, 1988

CARRIER GROUP AIR CARRIER	OPERATION	SERV- ICE	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS			
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL	FOREIGN MAIL
PRIORITY	NON- PRIORITY									
NORTHWEST.....	INTERNATIONAL.....	S	10602	10442	9830		742291.14		16047.91	9996.28
		NS	7				326.41			
		AS	10609	10442	9830		742617.55		16047.91	9996.28
	TOTAL.....	S	32410	32933	31029		1421658.11		37574.26	15785.14
		NS	57				2879.27			
		AS	32467	32933	31029		1424537.38		37574.26	15785.14
PAN AMERICAN ....	DOMESTIC.....	S	466332	478246	464768	31512086	263974.95		152267.95	1614.34
		NS	100			11484	2.52			138.16
		AS	466432	478246	464768	31523570	263977.47		152267.95	1614.34
	INTERNATIONAL.....	S	21633	21719	21396	4271618	265700.51		15258.00	7259.47
		NS	245			71474	690.19			1732.24
		AS	21878	21719	21396	4343092	266390.70		15258.00	7259.47
	TOTAL.....	S	487965	499965	486164	35783704	529675.46		167525.95	8873.81
		NS	345			82958	692.71			1870.40
		AS	488310	499965	486164	35866662	530368.17		167525.95	8873.81
PIEDMONT .....	DOMESTIC.....	S	73376	74160	72266	6775121	53292.90		20023.95	566.86
		NS	152			35985			20023.95	13.88
		AS	73528	74160	72266	6811106	53292.90			
	INTERNATIONAL.....	S	88894	89899	87997	9979262	185408.70		33121.08	5100.63
		NS	1010			137938	523.78		1.65	10970.34
		AS	89904	89899	8799	10117200	185932.48		33122.73	5100.63
	TOTAL.....	S	162270	164059	160263	16754383	238701.60		53145.03	5667.49
		NS	1162			173923	523.78		1.65	10984.22
		AS	163432	164059	160263	16928306	239225.38		53146.68	5667.49
TRANS WORLD .....	DOMESTIC.....	S	482743	490827	481806	26915894	59937.85		52793.06	
		NS	294			7578				
		AS	483037	490827	481806	26923472	59937.85		52793.06	
	INTERNATIONAL.....	S	2186	2197	1634	201030	5852.29		1.33	
		NS								
		AS	484929	493024	483440	27116924	65790.14		52794.39	
	TOTAL.....	S	163432	493024	483440	27124502	65790.14		52794.39	
		NS	294			7578				
		AS	485223	493024	483440	25178111	170621.30		160458.81	5739.58
UNITED .....	DOMESTIC.....	S	296805	303176	295754	21338640	95060.89		142926.69	959.89
		NS	1231			54767				
		AS	298036	303176	295754	21393407	95060.89		142926.69	959.89
	INTERNATIONAL.....	S	23865	24077	23627	3783996	75560.41		17532.12	4779.69
		NS	3			708				1045.82
		AS	23868	24077	23627	3784704	75560.41		17532.12	4779.69
	TOTAL.....	S	320670	327253	319381	25122636	170621.30		160458.81	5739.58
		NS	1234			55475				1045.82
		AS	321904	327253	319381	25178111	170621.30		160458.81	5739.58
UNITED .....	INTERNATIONAL.....	S	14801	14823	14626	3046917	73459.72		6331.14	1023.43
		NS	30			5424				
		AS	14831	14823	14626	3052341	73459.72		6331.14	1023.43
	TOTAL.....	S	625864	634550	623942	56326106	447805.77		255077.54	1023.43
		NS	777			41501				
		AS	626641	634550	623942	56367607	447805.77		255077.54	1023.43

TABLE 4.6—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, BY CARRIER GROUP, AND BY AIR CARRIER 12 MONTHS ENDED DECEMBER 31, 1988

CARRIER GROUP AIR CARRIER	OPERATION	SERV- ICE	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
									PRIORITY	NON- PRIORITY	FOREIGN MAIL
US AIR.....	DOMESTIC....	S NS AS	520995 2747 523742	530158	520572	32466061 165434 32631495	35895.77		76740.90		
TOTAL, MAJORS .....	DOMESTIC....	S NS AS	5049140 8808 5057948	5138297	5030696	356123463 541295 356664758	3709247.15 8130.86 3717378.01	1237.01	1377340.77 1020.23 1378361.00	11455.71	156.50
	INTERNA- TIONAL.....	S NS AS	2980131 1720 299733	298985	293193	34934762 238911 35173673	1603942.60 6397.13 1610339.73	178.25	106395.58 1001.65 107397.23	27339.13	16390.40
	TOTAL.....	S NS AS	5347153 10528 5357681	5437282	5323889	391058225 780206 391838431	5313189.75 14527.99 5327717.74	1415.26	1483736.35 2021.88 1485758.23	38794.84	16546.90
NATIONALS											
AIR WISCONSIN .....	DOMESTIC....	S NS AS	88450 1 88451	92530	88331	2419615 36 2419651	986.00		1474.00		
ALASKA.....	DOMESTIC....	S NS AS	97611 481 98092	98129	96659	4772029 30444 4802473	47137.07 83.67 47220.74		20390.84 294.64 20685.48	10835.35	
ALOHA .....	DOMESTIC....	S NS AS	56812 72 56884	57794	50933	3428293 4778 3433071	46990.95		3435.61	1.46	
AMERICA WEST.....	DOMESTIC....	S NS AS	189137 917 190054	190188	188559	12651025 98371 12749396	21060.12		14573.26		
AMERICAN TRANS.....	DOMESTIC....	S NS AS	468 10.9 1487	468	468	39952 82033 121985	5.54				
BRANIFF .....	DOMESTIC....	S NS AS	51424 1293 52717	52137	51323	4318069 171948 4490017	11850.91 .53 11851.44	160.40	6282.89		
	INTERNA- TIONAL.....	S NS AS	14 4 18	14	14	1678	.82				
	TOTAL.....	S NS AS	51438 1297 52735	52151	51337	4319747 171948 4491695	11851.73 .53 11852.26	160.40	6282.89		
HAWAIIAN.....	DOMESTIC....	S NS AS	81225 1849 83074	89849	76953	5340024 112350 5452374	15211.50		6879.86	137.07	
	INTERNA- TIONAL.....	S NS AS	1949 200 2149	1877	1778	157287 38551 195838	955.04		4286.84		
	TOTAL.....	S NS AS	83174 2049 85223	91726	78731	5497311 150901 5648212	16166.54		11166.70	137.07	
MIDWAY .....	DOMESTIC....	S NS AS	78047 196 78243	80123	77929	4258052 4387 4262439			14.33	14.33	

TABLE 4.6—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, BY CARRIER GROUP, AND BY AIR CARRIER 12 MONTHS ENDED DECEMBER 31, 1988

CARRIER GROUP AIR CARRIER	OPERATION	SERV- ICE	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
									PRIORITY	NON- PRIORITY	FOREIGN MAIL
PACIFIC SOUTHWEST.....	DOMESTIC.....	S NS AS	40104 178 40282	40592	39786	2365359 20468 2385827	3955.59 3955.59		2445.59		
SOUTHWEST.....	DOMESTIC.....	S NS AS	274736 112 274848	278219	274736	16841674 11169 16852843			2445.59		
ZANTOP .....	DOMESTIC.....	S	13175	9092	8965		59513.59				
TOTAL, NATIONALS.....	DOMESTIC.....	S NS AS	971189 6118 977307	989121	954642	56434092 535984 56970076	206705.73 89.74 206795.47	160.40 160.40	55482.05 308.97 55791.02	10973.88	
	INTERNA- TIONAL.....	S NS AS	1963 204 2167	1891	1792	158965 38551 197516	955.86		4286.84		
	TOTAL.....	S NS AS	973152 6322 979474	991012	956434	56593057 574535 57167592	207661.59 89.74 207751.33	160.40	59768.89 308.97 60077.86	10973.88	10973.88
LARGE REGIONALS											
AIR AMERICA.....	DOMESTIC.....	S NS AS	1159 73 1232	1200	1133	302789 10001 312790					
ARROW.....	DOMESTIC.....	S NS AS	528 310 838	528	528		4410.00 9730.70 14140.70				
	INTERNA- TIONAL.....	S NS AS	4 132 136	4	4		143.30 4142.50 4265.80				
	TOTAL.....	S NS AS	532 442 974	532	532		4533.30 13873.20 18406.50				
ASPEN.....	DOMESTIC....	S NS AS	30339 155 30494	31579	29998	877839 7218 885057	907.54		89.62		
FLORIDA EXPRESS.....	DOMESTIC....	S NS AS	24796 32 24828	25392	24645	1106655 1076 1107731	250.71	19.29	750.42		
	INTERNA- TIONAL..	S	481	481	480	23470					
	TOTAL.....	S NS AS	25277 32 25309	25873	25125	1130125 1076 1131201	250.71	19.29	750.42		
HORIZON.....	DOMESTIC....	S NS AS	149215 124 149339	153785	149205	1400928 6413 1407341	163476.43		54541.04		
MARKAIR.....	DOMESTIC....	S NS AS	19005 486 19491	20474	17903	356944 1154 358098	22982.49 1256.45 24238.94	2664.96	20602.38		
								2664.96	20602.38		

TABLE 4.6—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, BY CARRIER GROUP, AND BY AIR CARRIER 12 MONTHS ENDED DECEMBER 31, 1988

CARRIER GROUP AIR CARRIER	OPERATION	SERV- ICE	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
									PRIORITY	NON- PRIORITY	FOREIGN MAIL
MIDWEST EXPRESS .....	DOMESTIC.....	S NS AS	11992 120 12112	12131	11992	402084 4759	893.00		22.00	3244.00	
NORTHERN AIR.....	DOMESTIC.....	S NS AS	8242 90 8332	7516	7329		19359.59 315.17 19674.76		706.00	19445.79	
PRESIDENTIAL .....	DOMESTIC.....	S NS AS	37831 10 37931	41545	37831	854354 4037					
REEVE .....	DOMESTIC.....	S NS AS	2582 455 3037	2954	2583	40550 6891	1065.64 584.11		2074.94	116.49	
ROSENBALM .....	INTERNAL- TIONAL.....	S NS AS	373 59 432	229	373		33643.55 696.60				
SUNWORLD .....	DOMESTIC.....	S NS AS	889 162 1051	1104	889	53689 3186	1941.00				
TOWER .....	INTERNAL- TIONAL.....	S NS AS	778 140 918	778	778	246418 59080					
WESTAIR .....	DOMESTIC.....	S	92430	95567	92182	1223466	72.00			87.50	
TOTAL, LARGE REGIONALS.....	DOMESTIC.....	S NS AS	379008 2107 381115	393775	376218	6619298 44735 664033	215358.40 11886.43 227244.83	19.29	60848.98 116.49	43379.67	
	INTERNAL- TIONAL.....	S NS AS	1636 331 1967	1492	1635	269888 59080	33766.85 4839.10				
	TOTAL.....	S NS AS	380644 2438 383082	395267	377853	6889186 103815 6993001	249125.25 16725.53 265850.78	19.29	60848.98 116.49	43379.67	
									60965.47	43379.67	
MEDIUM REGIONALS AERIAL TRANSIT .....	INTERNAL- TIONAL.....	S NS AS	149 500 649	149	149		1489.10 6788.20 8277.30				
CHALLENGE AIR CARGO.....	INTERNAL- TIONAL.....	S NS AS	2237 8 2245	2237	2237		48736.00 110.85 48846.85		830.00		
									830.00		
MGM GRAND .....	DOMESTIC.....	S NS AS	1298 16 1314	1311	1298	27037 311 27348				411.82	
										411.82	

TABLE 4.6—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, BY CARRIER GROUP, AND BY AIR CARRIER 12 MONTHS ENDED DECEMBER 31, 1988

CARRIER GROUP AIR CARRIER	OPERATION	SERV- ICE	AIRCRAFT DEPARTURES			EN- PLANED PASSENGERS	ENPLANED REVENUE TONS				
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
									PRIORITY	NON- PRIORITY	
TOTAL, MEDIUM REGIONALS.....	DOMESTIC.....	S	1298	1311	1298	27037				411.82	
		NS	16			311				411.82	
		AS	1314	1311	1298	27348					
	INTERNA- TIONAL.....	S	2386	2386	2386		50225.10		830.00		
		NS	508				6899.05				
		AS	2894	2386	2386		57124.15		830.00		
	TOTAL.....	S	3684	3697	3684	27037	50225.10		830.00	411.82	
		NS	524			311	6899.05			411.82	
		AS	4208	3697	3684	27348	57124.15		830.00	411.82	
OVER-ALL TOTAL, ALL CARRIERS	DOMESTIC.....	S	6400635	6522504	6362854	419203890	4131311.28	1416.70	1493671.80	66221.08	156.50
		NS	17049			1122325	20107.03		1445.69		
		AS	6417684	6522504	6362854	420326215	4151418.31	1416.70	1495117.49	66221.08	156.50
	INTERNA- TIONAL.....	S	303998	304754	299006	35363615	1688890.41	178.25	111512.42	27339.13	16390.40
		NS	2763			336542	18135.28		1001.65		
		AS	306761	304754	299006	35700157	1707025.69	178.25	112514.07	27339.13	16390.40
	TOTAL.....	S	6704633	6827258	6661860	454567505	5820201.59	1594.95	1605184.22	93560.21	16546.90
		NS	19812			1458867	38242.31		2447.34		
		AS	6724445	6827258	6661860	456026372	5858444.00	1594.95	1607631.56	93560.21	16546.90

Note: S = Scheduled  
NS = Nonscheduled  
AS = All Service

TABLE 4.7

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, AND BY STATE AND COUNTRY 12 MONTHS ENDED DECEMBER 31, 1988

STATE OR COUNTRY	OPERATION	SERV- ICE	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL	FOREIGN MAIL	
PRIORITY	NON- PRIORITY										
50 U.S. STATES											
ALABAMA.....	DOMESTIC....	S NS AS	41282 24 41306	42013	41064	1860590 1479 1862069	12154.86 12154.86	1.72	4776.68	.23	
ALASKA.....	DOMESTIC....	S NS AS	71716 1631 73347	73904	68680	2047643 39713 2087356	284613.23 4468.82 289082.05		16638.53 93.51 16732.04	53318.59	54.65
	INTERNA- TIONAL....	S NS AS	2197 19 2216	1940	1935	7151 1262 8413	149637.48 89.10 149726.58		5300.59	1923.36	22.44
	TOTAL.....	S NS AS	73913 1650 75563	75844	70615	2054794 40975 2095769	434250.71 4557.92 438808.63		21939.12 93.51 22032.63	55241.95	77.09
ARIZONA.....	DOMESTIC....	S NS AS	160508 270 160778	161832	160164	10913153 17873 10931026	36130.16 179.54 36309.70	1.96	18800.47 1000.00 19800.47	.37	
	INTERNA- TIONAL....	S	366	366	366	22262	4.79				
	TOTAL.....	S NS AS	160874 270 161144	162198	160530	10935415 17873 10953288	36134.95 179.54 36314.49	1.96	18800.47 1000.00 19800.47	.37	
ARKANSAS.....	DOMESTIC....	S NS AS	15380 7 15387	15567	15335	879643 382 880025	844.47 844.47		3491.65		
CALIFOR- NIA.....	DOMESTIC....	S NS AS	715832 1259 717021	730646	714512	50107252 118777 50226029	620404.51 373.61 620778.12	320.49	142156.45 20.00 142176.45	2416.28	8.56
	INTERNA- TIONAL....	S NS AS	7740 9 7749	7758	7726	1291067 1700 1292767	29227.44 29227.44	.85	4426.36	390.34	7.14
	TOTAL.....	S NS AS	723572 1268 724840	738404	722238	51398319 120477 51518796	649631.95 373.61 650005.56	321.34	146582.81 20.00 146602.81	2806.62	15.70
COLORADO....	DOMESTIC....	S NS AS	214008 365 214373	217629	213114	15480686 18659 15499345	72604.91 3.90 72608.81	7.11	55396.81	8.49	
	INTERNA- TIONAL....	S	227	232	226	43046	641.11		33.45		
	TOTAL.....	S NS AS	214235 365 214600	217861	213340	15523732 18659 15542391	73246.02 3.90 73249.92	7.11	55430.26	8.49	
CONNECTI- CUT.....	DOMESTIC....	S NS AS	32537 33 32570	33098	32418	2320340 1646 2321986	9807.38 40	15621.85	8.78		
	INTERNA- TIONAL....	S	21								
	TOTAL.....	S NS AS	32558 33 32591	33098	32418	2320340 1646 2321986	9807.38 40	15621.85	8.78		

TABLE 4.7—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, AND BY STATE AND COUNTRY 12 MONTHS ENDED DECEMBER 31, 1988

STATE OR COUNTRY	OPERATION	SERV- ICE	AIRCRAFT DEPARTURES			EN- PLANED PASSENGERS	ENPLANED REVENUE TONS				
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
									PRIORITY	NON- PRIORITY	FOREIGN MAIL
DELAWARE...	DOMESTIC.....	S	2	1	1	1	112.44				
DIST OF COL .....	DOMESTIC.....	S NS AS	174329 163 174492	178620 178620	172889 172889	11340820 6615 11347435	57616.30 162.01 57778.31	15.51	51601.58 51601.58	774.33 774.33	.02 .02
	INTERNA- TIONAL.....	S NS AS	1454 1 1455	1483 1483	1436 1436	238922 270 239192	5737.59 5737.59		4493.88 4493.88	12.41 12.41	
	TOTAL.....	S NS AS	175783 164 175947	180103 180103	174325 174325	11579742 6885 11586627	63353.89 162.01 63515.90	15.51	56095.46 56095.46	786.74 786.74	.02 .02
FLORIDA .....	DOMESTIC....	S NS AS	410677 1923 412600	417237 417237	409109 409109	30712615 196495 30909110	168812.27 3097.62 171909.89	13.68	66939.42 66939.42	141.23 141.23	4.66 4.66
	INTERNA- TIONAL.....	S NS AS	18658 887 19545	18804 18804	18518 18518	2248868 17593 2266461	63338.35 11041.55 74379.90		6037.39 6037.39	793.31 793.31	.93 .93
	TOTAL.....	S NS AS	429335 2810 432145	436041 436041	427627 427627	32961483 214088 33175571	232150.62 14139.17 246289.79	13.68	72976.81 72976.81	934.54 934.54	5.59 5.59
GEORGIA.....	DOMESTIC....	S NS AS	288672 397 289069	294450 294450	287963 287963	22039603 12601 22052204	133653.84 1132.20 134786.04	.52	113437.94 113437.94	136.47 136.47	
	INTERNA- TIONAL.....	S NS AS	3475 14 3489	3487 3487	3461 3461	521121 1162 522283	9925.13 9925.13		815.53 815.53		
	TOTAL.....	S NS AS	292147 411 292558	297937 297937	291424 291424	22560724 13763 22574487	143578.97 1132.20 144711.17	.52	114253.47 114253.47	136.47 136.47	
HAWAII .....	DOMESTIC....	S NS AS	153812 1408 155220	162609 162609	143959 143959	12068734 84034 12152768	174972.42 41.76 175014.18	34.62	17947.51 17947.51	491.61 491.61	.77 .77
	INTERNA- TIONAL.....	S NS AS	4640 99 4739	4606 4606	4505 4505	1008319 18686 1027005	26764.32 26764.32	44.52	6486.03 6486.03	185.57 185.57	8.26 8.26
	TOTAL.....	S NS AS	158452 1507 159959	167215 167215	148464 148464	13077053 102720 13179773	201736.74 41.76 201778.50	79.14	24433.54 24433.54	677.18 677.18	9.03 9.03
IDAHO.....	DOMESTIC....	S NS AS	35445 23 35468	36273 36273	35402 35402	702684 1361 704045	30626.62 30626.62		18018.98 18018.98		
ILLINOIS .....	DOMESTIC....	S NS AS	394764 474 395238	405824 405824	393888 393888	29809443 19082 29828525	304502.35 161.76 304664.11	45.53	139710.99 1.43	1172.50 1172.50	7.08 7.08
	INTERNA- TIONAL.....	S NS AS	2935 4 2939	2946 2946	2932 2932	414468 414468	12036.11 317.48 12353.59		3908.68 3908.68	15.63 15.63	
	TOTAL.....	S NS AS	397699 478 398177	408770 408770	396820 396820	30223911 19082 30242993	316538.46 479.24 317017.70	45.53	143619.67 1.43	1188.13 1188.13	7.08 7.08

TABLE 4.7—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, AND BY STATE AND COUNTRY 12 MONTHS ENDED DECEMBER 31, 1988

STATE OR COUNTRY	OPERATION	SERV. ICE	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
									PRIORITY	NON- PRIORITY	FOREIGN MAIL
INDIANA.....	DOMESTIC.....	S NS AS	61137 866 62003	62290	60743	2993473 44925 3038398	17215.88 5.54 17221.42		10633.45	4.58	
	INTERNATIONAL.....	S	1	62290	60743				10633.45	4.58	
	TOTAL.....	S NS AS	61138 866 62004	62290	60743	2993473 44925 3038398	17215.88 5.54 17221.42		10633.45	4.58	
IOWA.....	DOMESTIC.....	S NS AS	27672 41 27713	28013	27519	1124340 2365	7379.30		8367.44	.15	
						1126705	7379.30		8367.44	.15	
	TOTAL.....	S NS AS	27672 41 27713	28013	27519	1126705	7379.30		8367.44	.15	
KANSAS.....	DOMESTIC.....	S NS AS	14378 14 14392	14580	14291	602128 221	10691.21	25.44	2911.40		
KENTUCKY....	DOMESTIC.....	S NS AS	37481 72 37553	38085	37371	1341253 4184	10235.88	.11	6686.19		
						1345437	10235.88	.11	6686.19		
	TOTAL.....	S NS AS	37481 72 37553	38085	37371	1345437	10235.88	.11	6686.19		
LOUISIANA....	DOMESTIC.....	S NS AS	65136 101 65237	66122	64966	3975464 8218	24263.64	.47	10128.69		
	INTERNATIONAL.....	S	301	245	235	19759	10.45		.39		
	TOTAL.....	S NS AS	65437 101 65538	66367	65201	3995223 8218	24274.09	.47	10129.08		
MAINE.....	DOMESTIC.....	S NS AS	12637 7 12644	12895	12617	744215 469	3908.66	9.03	1634.61	9.59	
	INTERNATIONAL.....	S	80			744684	3908.66	9.03	1634.61	9.59	
	TOTAL.....	S NS AS	12717 7 12724	12895	12617	744215 469	3908.66	9.03	1634.61	9.59	
MARYLAND...	DOMESTIC.....	S NS AS	71328 134 71462	72228	70929	4264093 4267	15102.16	.77	18530.25	11.99	
	INTERNATIONAL.....	S	1015	1026	1012	101338	695.72		860.65	67.12	
	TOTAL.....	S NS AS	72343 134 72477	73254	71941	4365431 4267	15797.88	.77	19390.90	79.11	
MASSACHU- SETTS.....	DOMESTIC. ....	S NS AS	116639 293 116932	118246	114931	9799062 19174 9818236	107795.04 38.41 107833.45	3.93	28584.22	763.66	27.31
	INTERNATIONAL.....	S NS AS	2584 1 2585	2594	2563	465187	10485.73		1264.87	135.12	1.98
	TOTAL.....	S NS AS	119223 294 119517	120840	117494	10264249 19174 10283423	118280.77 38.41 118319.18	3.93	29849.09	898.78	29.29

TABLE 4.7—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, AND BY STATE AND COUNTRY 12 MONTHS ENDED DECEMBER 31, 1988

STATE OR COUNTRY	OPERATION	SERV-ICE	AIRCRAFT DEPARTURES			EN-PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
									PRIORITY	NON-PRIORITY	FOREIGN MAIL
MICHIGAN.....	DOMESTIC.....	S NS AS	161559 359 161918	164682	160136	10436510 33231 10469741	56302.61 13.60 56316.21	2.53	38646.46 .45 38646.91	23.66	6.52
	INTERNA- TIONAL.....	S	723	732	718	134183	2282.79		861.23	.01	
	TOTAL.....	S NS AS	162282 359 162641	165414	160854	10570693 33231 10603924	58585.40 13.60 58599.00	2.53	39507.69 .45 39508.14	23.67	6.52
MINNESOTA .....	DOMESTIC.....	S NS AS	113907 584 114491	116999	113760	8259421 82079 8342100	53884.16 15.40 53899.56	2.66	42076.23 .40 42076.63	32.58	12.24
	INTERNA- TIONAL.....	S NS AS	257 18 275	253	252	64708 557 65265	2440.81 159.87 2600.68		85.77	.01	.04
	TOTAL.....	S NS AS	114164 602 114766	117252	114012	8324129 83236 8407365	56324.97 175.27 56500.24	2.66	42162.00 .40 42162.40	32.59	12.28
MISSISSIPPI .....	DOMESTIC.....	S NS AS	11531 3 11534	11694	11493	491206 99 491305	709.50		1882.66		
MISSOURI.....	DOMESTIC.....	S NS AS	209615 498 210113	213020	208409	14042370 15691 14058061	61676.88	114.16	74750.99	34.42	
	INTERNA- TIONAL.....	S	594	600	593	87842	1739.12		693.76		
	TOTAL.....	S NS AS	210209 498 210707	213620	209002	14130212 15691 14145903	63416.00	114.16	75444.75	34.42	
MONTANA.....	DOMESTIC.....	S NS AS	32288 11 32299	32846	32221	680949 674 681623	12212.61	.16	3443.73		
NEBRASKA.....	DOMESTIC.....	S NS AS	27574 72 27646	27796	27293	1265378 5332 1270710	4364.83	3.75	10190.30 .23 10190.53	5.66	
NEVADA .....	DOMESTIC.....	S NS AS	101728 681 102409	102482	101356	8239000 77860 8316860	11844.31	.81	8192.36	.45	
	INTERNA- TIONAL.....	S	4								
	TOTAL.....	S NS AS	101732 681 102413	102482	101356	8239000 77860 8316860	11844.31	.81	8192.36	.45	
NEW HAMP- SHIRE .....	DOMESTIC.....	S NS AS	3673 32 3705	3704	3670	167323 1157 168889	1643.64		716.16		
NEW JERSEY .	DOMESTIC.....	S NS AS	138120 335 138455	141390	137093	10510020 24095 10534115	117677.78 1552.15 119229.93	45.16	32717.83	702.33	

TABLE 4.7—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, AND BY STATE AND COUNTRY 12 MONTHS ENDED DECEMBER 31, 1988

STATE OR COUNTRY	OPERATION	SERV- ICE	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
									PRIORITY	NON- PRIORITY	FOREIGN MAIL
NEW MEXICO .....	INTERNATIONAL.....	S	2181	2170	2149	330275	18856.13	.95	201.04		
		NS	2				124.60				
	TOTAL.....	AS	2183	2170	2149	330275	18980.73	.95	201.04		
		NS	337				24095	1676.75			
	DOMESTIC.....	S	140301	143560	139242	10840295	136533.91	46.11	32918.87	702.33	
		NS	337				24095	1676.75			
NEW YORK.....	DOMESTIC.....	S	140638	143560	139242	10864390	138210.66	46.11	32918.87	702.33	
		AS									
	INTERNATIONAL.....	S	36773	37128	36659	2121315	5674.33	.07	4547.32	5.48	
		NS	49			3197					
	TOTAL.....	AS	36822	37128	36659	2124512	5674.33	.07	4547.32	5.48	
		NS	337								
NORTH CAROLINA ...	DOMESTIC.....	S	318519	323196	315283	23998787	186363.11	13.51	91485.05	2223.81	10.09
		NS	782			39176	488.90		1.20		
	INTERNATIONAL.....	AS	319301	323196	315283	24037963	186852.01	13.51	91486.25	2223.81	10.09
		S	21053	21333	20950	4120689	84304.81		27069.56	4305.29	29.63
	TOTAL.....	NS	171			66074	354.61		27069.56	4305.29	29.63
		AS	21224	21333	20950	4186763	84659.42				
NORTH DAKOTA .....	DOMESTIC.....	S	339572	344529	336233	28119476	270667.92	13.51	118554.61	6529.10	39.72
		NS	953			105250	843.51		1.20		
	INTERNATIONAL.....	AS	340525	344529	336233	28224726	271511.43	13.51	118555.81	6529.10	39.72
		S									
	TOTAL.....	NS									
		AS									
OHIO .....	DOMESTIC.....	S	205733	209554	204816	11695528	58343.44		27920.32	6.14	
		NS	191			5254			27920.32	6.14	
	INTERNATIONAL.....	AS	205924	209554	204816	11700782	58343.44				
		S	941	948	640	83781	3951.61		9.60	.05	
	TOTAL.....	NS	206674	210502	205456	11779309	62295.05		27929.92	6.19	
		AS	191			5254			27929.92	6.19	
OREGON.....	DOMESTIC.....	S	206865	210502	205456	11784563	62295.05				
		NS									
	INTERNATIONAL.....	AS	13173	13292	13114	466946	2777.97		1216.57		
		S	5			176					
	TOTAL.....	NS	13178	13292	13114	467122	2777.97		1216.57		
		AS									
OKLAHOMA...	DOMESTIC.....	S	217571	220886	216450	11427810	178697.72	1.27	48485.43	440.88	.10
		NS	447			20322			3.45		
	INTERNATIONAL.....	AS	218018	220886	216450	11448132	178697.72	1.27	48488.88	440.88	.10
		S	456	453	456	57803	2410.70		.79		
	TOTAL.....	NS	218027	221339	216906	11485613	181108.42	1.27	48486.22	440.88	.10
		AS	447			20322			3.45		
CALIFORNIA...	DOMESTIC.....	S	218474	221339	216906	11505935	181108.42	1.27	48489.67	440.88	.10
		NS									
	INTERNATIONAL.....	AS	54454	55190	54247	2851868	15339.43	4.04	9106.12	.37	1.12
		S	96			3146					
	TOTAL.....	NS	54550	55190	54247	2855014	15339.43	4.04	9106.12	.37	1.12
		AS									
IDAHO.....	DOMESTIC.....	S	93125	95084	92996	3171788	90321.95	.19	19107.70	1.62	.02
		NS	175			8804	702.25				
	INTERNATIONAL.....	AS	93300	95084	92996	3180592	91024.20	.19	19107.70	1.62	.02
		S	640	642	639	64429	4653.95		82.21		
	TOTAL.....	NS	2				76.10				
		AS	642	642	639	64429	4730.05		82.21		
MONTANA.....	DOMESTIC.....	S	93765	95726	93635	3236217	94975.90	.19	19189.91	1.62	.02
		NS	177			8804	778.35				
	INTERNATIONAL.....	AS	93942	95726	93635	3245021	95754.25	.19	19189.91	1.62	.02
		S									

TABLE 4.7—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, AND BY STATE AND COUNTRY 12 MONTHS ENDED DECEMBER 31, 1988

STATE OR COUNTRY	OPERATION	SERV- ICE	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
									PRIORITY	NON- PRIORITY	FOREIGN MAIL
PENNSYLVANIA.....	DOMESTIC.....	S NS AS	242050 774	246370	241495	15908641 34213	70320.04 200.32	5.50	72707.54 6.25	453.97	
	INTERNATIONAL.....	S	375	367	364	46937	404.59		93.55		
	TOTAL.....	S NS AS	242425 774 243199	246737	241859	15955578 34213 15989791	70724.63 200.32 70924.95	5.50	72801.09 6.25 72807.34	453.97	
RHODE ISLAND.....	DOMESTIC.....	S NS AS	13981 40	14294	13942	942791 2052	2166.87	.02	2758.70	.83	
			14021	14294	13942	944843	2166.87	.02	2758.70	.83	
SOUTH CAROLINA ...	DOMESTIC.....	S NS AS	40049 69	40817	39721	1925562 3929	3163.28 2.70		5678.51	.31	
	INTERNATIONAL.....	S	1			97			5678.51	.31	
	TOTAL.....	S NS AS	40050 69 40119	40817	39721	1925659 3929 1929491	3163.28 2.70 3165.98		5678.51	.31	
SOUTH DAKOTA .....	DOMESTIC.....	S NS AS	11421 5	11600	11349	362520 287	1449.38		1723.12		
			11426	11600	11349	362807	1449.38		1723.12		
TENNESSEE...	DOMESTIC.....	S NS AS	182752 149	185231	182227	8724027 5685	589882.20 214.61	.04	31077.95 1.15	.22	.19
	INTERNATIONAL.....	S	1	1	1	52					
	TOTAL.....	S NS AS	182753 149 182902	185232	182228	8724079 5685 8729764	589882.20 214.61 590096.81	.04	31077.95 1.15 31079.10	.22	.19
TEXAS.....	DOMESTIC.....	S NS AS	562609 1072	570487	561927	41231534 97082	197436.72 221.60	724.54	113787.88	176.65	
	INTERNATIONAL.....	S NS AS	563681	570487	561927	41328616	197658.32	724.54	113787.88	176.65	
	TOTAL.....	S NS AS	574218 1076 575294	582131	573452	42558889 97082 42655971	218788.44 221.60 19810.04	747.73 147.73	115648.38 115648.38	193.45	.19
UTAH.....	DOMESTIC.....	S NS AS	75195 43	75747	75074	4726769 3166	33528.23	12.82	16176.07	.06	
	INTERNATIONAL.....	S	2								
	TOTAL.....	S NS AS	75197 43 75240	75747	75074	4729937	33528.23	12.82	16176.07	.06	

TABLE 4.7—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, AND BY STATE AND COUNTRY 12 MONTHS ENDED DECEMBER 31, 1988

STATE OR COUNTRY	OPERATION	SERVICE	AIRCRAFT DEPARTURES			EN-PLANED PASSENGERS	ENPLANED REVENUE TONS				
			TOTAL PER-FORMED	SCHED-ULED	SCHED-ULED COMPLET-ED		FREIGHT	EXPRESS	U.S. MAIL		
									PRIORITY	NON-PRIORITY	
VERMONT.....	DOMESTIC.....	S NS AS	7249 7 7256	7391	7240	375179 150 375329	1471.99		1078.23		
VIRGINIA.....	DOMESTIC.....	S NS AS	66115 61 66176	67731	65740	2775338 1973 2777311	8816.64	.15	6877.11	.01	
	INTERNA-TIONAL.....	S	2								
	TOTAL.....	S NS AS	66117 61 66178	67731	65740	2775338 1973 2777311	8816.64	.15	6877.11	.01	
WASHING-TON.....	DOMESTIC.....	S NS AS	176532 296 176828	179990	176010	7552974 18570 7571544	182954.88 220.53 183175.41	2.89	57291.01 317.62 57608.63	197.23 22.05	
	INTERNA-TIONAL.....	S NS AS	1523 9 1532	1523	1502	339828 1047 340875	6110.31 95.54 6205.85		2744.37	54.06 41.91	
	TOTAL.....	S NS AS	178055 305 178360	181513	177512	7892802 19617 7912419	189065.19 316.07 189381.26	2.89	60035.38 317.62 60353.00	251.29 63.96 251.29	
WEST VIRGINIA.....	DOMESTIC.....	S NS AS	12331 4 12335	13130	12270	310517	905.50		323.72		
WISCONSIN....	DOMESTIC.....	S NS AS	65747 168 65915	67455	65351	2696062 8253 2704315	12501.11	1.14	7865.49	1586.87	
	INTERNA-TIONAL.....	S	2								
	TOTAL.....	S NS AS	65749 168 65917	67455	65351	2696062 8253 2704315	12501.11	1.14	7865.49	1586.87	
WYOMING.....	DOMESTIC.....	S NS AS	11861 3 11864	12141	11803	205419 94 205513	841.14		89.83		
TOTAL 50 STATES	DOMESTIC.....	S NS AS	6322607 16516 6339123	6443489	6285010	412691287 1098789 413790076	4066719.78 13297.23 408001701	1416.70	1483935.50 1445.69 1485381.19	65152.40 155.38	
	INTERNA-TIONAL.....	S NS AS	86058 1240 87298	86153	84704	13039487 108351 13147838	457010.76 12258.85 469269.61	69.51	67330.20	7899.08 112.52	
	TOTAL.....	S NS AS	6408665 17756 6426421	6529642	6369714	425730774 1207140 426937914	4523730.54 25556.08 4549286.62	1486.21	1551265.70 1445.69 1552711.39	73051.48 267.90	

TABLE 4.7—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, AND BY STATE AND COUNTRY 12 MONTHS ENDED DECEMBER 31, 1988

STATE OR COUNTRY	OPERATION	SERV- ICE	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS			FOREIGN MAIL		
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL			
									PRIORITY	NON- PRIORITY		
OTHER U.S. AREAS												
AMERICAN SAMOA.....	INTERNA- TIONAL.....	S NS AS	476 1 477	467	444	35601 199 35800	154.58		78.99			
CAROLINE ISLANDS .....	INTERNA- TIONAL.....	S	2082	1960	1938	65596	907.42	3.69	155.77		.46	
GUAM.....	INTERNA- TIONAL.....	S NS AS	4271 98 4369	3851	3798	467573 19490 487063	11788.25	101.02	1850.93	22.54	1.19	
JOHNSTON ISLAND.....	INTERNA- TIONAL.....	S	248	252	246	231	4.07		7.75			
MARIANA ISLANDS .....	INTERNA- TIONAL.....	S	2644	2348	2308	164720	1069.96	2.40	77.62			
MARSHALL ISLANDS .....	INTERNA- TIONAL.....	S	742	744	737	13233	107.34	.39	107.41			
MIDWAY ISLAND.....	INTERNA- TIONAL.....	S	1									
PUERTO RICO.....	DOMESTIC.....	S NS AS	20157 231 20388	20466	20078	2741816 1414 2743230	49632.23 6721.10 56353.33		4424.98	731.90		
	INTERNA- TIONAL.....	S NS AS	5144 1 5145	5226	5122	522149 255 522404	3968.36		67.43	.41		
	TOTAL.....	S NS AS	25301 232 25533	25692	25200	3263965 1669 3265634	53600.59 6721.10 60321.69		4492.41	732.31		
ST CROIX, U.S. VIRGIN .....	DOMESTIC.....	S NS AS	5592 7 5599	5629	5541	337021 749 337770	481.79		353.32	74.92		
	INTERNA- TIONAL.....	S	1740	1743	1722	108172	553.77		134.88	52.60		
	TOTAL.....	S NS AS	7332 7 7339	7372	7263	445193 749 445942	1035.56		488.20	127.52		
									466.20	127.52		
TOTAL U.S. AREAS	DOMESTIC.....	S NS AS	25749 238 25987	26095	25619	3078837 2163 3081000	50114.02 6721.10 56835.12		4778.30	806.82		
									4778.30	806.82		

TABLE 4.7—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, AND BY STATE AND COUNTRY 12 MONTHS ENDED DECEMBER 31, 1988

STATE OR COUNTRY	OPERATION	SERVICE	AIRCRAFT DEPARTURES			EN-PLANED PASSENGERS	ENPLANED REVENUE TONS				
			TOTAL PER-FORMED	SCHED-ULED	SCHED-ULED COMPLET-ED		FREIGHT	EXPRESS	U.S. MAIL		
									PRIORITY	NON-PRIORITY	
FOREIGN COUNTRIES	INTERNATIONAL.....	S NS AS	17348 100 17448	16591	16315	1377275 19944 1397219	18553.75 18553.75 107.50	2480.78 2480.78 7259.08	75.55 75.55 882.37	1.65 1.65 1.65	
	TOTAL.....	S NS AS	43097 338 43435	42686	41934	4456112 22107 4478219	68667.77 6721.10 75388.87	107.50	7259.08	882.37 1.65	
ANTIGUA & BARBUDA.....	INTERNATIONAL.....	S NS AS	1488 6 1494	1520	1484	81789 491 82280	357.54 357.54		45.35 45.35	5.14 5.14	
ARGENTINA..	INTERNATIONAL.....	S NS AS	1368 1 1369	1411	1356	141036 256 141292	8620.18 8620.18		49.23 49.23	6.20 6.20	
ARUBA.....	INTERNATIONAL.....	S NS AS	1850 3 1853	1868	1844	152101 648 152749	250.73 250.73		24.59 24.59		
AUSTRALIA...	DOMESTIC.....	S	1	1	1		.20				
	INTERNATIONAL.....	S	2413	2417	2318	378969	22453.09	.15	177.07	.08	
	TOTAL.....	S	2414	2418	2319	378969	22453.29	.15	177.07	.08	
AUSTRIA.....	INTERNATIONAL.....	S NS AS	303 2 305	307	301	21237 830 22067	392.00 392.00		7.85 7.85		
BAHAMAS.....	DOMESTIC.....	S NS AS	1736 10 1746	1748	1733	104762 786 105548	26.15 26.15				
	INTERNATIONAL.....	S NS AS	5947 3 5950	6074	5685	602364 137 602501	283.50 283.50		1.10 1.10	1.02 1.02	
	TOTAL.....	S NS AS	7683 13 7696	7822	7418	707126 923 708049	309.65 309.65		1.10 1.10	1.02 1.02	
BAHRAIN.....	INTERNATIONAL.....	S	4								
BARBADOS....	INTERNATIONAL.....	S NS AS	2939 1 2940	2973	2936	182642 87 182729	555.60 555.60		39.44 39.44	.02 .02	
BELGIUM.....	INTERNATIONAL.....	S NS AS	4819 35 4854	4835	4796	92111 261 92372	31805.00 1931.45 33736.45		302.56 302.56	128.92 128.92	
BERMUDA.....	DOMESTIC.....	S	4			100	5.21		.23		

TABLE 4.7—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, AND BY STATE AND COUNTRY 12 MONTHS ENDED DECEMBER 31, 1988

STATE OR COUNTRY	OPERATION	SERV- ICE	AIRCRAFT DEPARTURES			EN- PLANED- PASSEN- GERS	ENPLANED REVENUE TONS				
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
									PRIORITY	NON- PRIORITY	FOREIGN MAIL
	INTERNATIONAL.....	S NS AS	3456 8 3464	3490 3490 3428	3428 3428 3428	431378 1051 432429	368.51 368.51		246.52 246.52	.20 .20	9.86 9.86
	TOTAL.....	S NS AS	3460 8 3468	3490 3490 3490	3428 3428 3428	431478 1051 432529	373.72 373.72		246.75 246.75	.20 .20	9.86 9.86
BOLIVIA.....	INTERNATIONAL.....	S	310	313	310	15531	60.07		3.14	24.09	
BRAZIL.....	INTERNATIONAL.....	S NS AS	2184 13 2197	2200 2200	2173 2173	228682 4005 232687	48409.98 48409.98		289.00 289.00	1.89 1.89	54.94 54.94
BRITISH HONDURAS.....	INTERNATIONAL.....	S	486	479	476	13148	131.50			.25	
BRITISH WEST INDIES .....	DOMESTIC.....	S	812	816	809	38682	26.26			.16	
	INTERNATIONAL.....	S	876	847	837	52844	904.27			2.05	1.47
	TOTAL.....	S	1688	1663	1646	91526	930.53			2.21	1.47
CANADA .....	DOMESTIC.....	S NS AS	48334 284 48618	48941 48941	48301 48301	3205152 20507 3225659	14354.06 88.70 14442.76		4957.59	261.86	
	INTERNATIONAL.....	S	37			202	1788.96			15.16	5.10
	TOTAL.....	S NS AS	48371 284 48655	48941 48941	48301 48301	3205354 20507 3225861	16143.02 88.70 16231.72		4972.75	266.96	
CHILE.....	INTERNATIONAL.....	S	561	573	557	67439	6082.59			17.79	.69
CHINA .....	INTERNATIONAL.....	S	427	441	422	38685	2065.89			.06	3.75
COLOMBIA.....	INTERNATIONAL.....	S	1909	1923	1892	101788	14688.81			50.87	8.72
COOK ISLAND.....	INTERNATIONAL.....	S	69	70	67	3668	42.48			.40	
COSTA RICA ..	DOMESTIC .....	S	16	16	16		5 58				
	INTERNATIONAL.....	S NS AS	1048 3 1051	1070 1070	1041 1041	78715 659 79374	8783.91 8783.91			9.11	11.20
	TOTAL.....	S NS AS	1064 3 1067	1086 1086	1057 1057	78715 659 79374	8789.49 8789.49			9.11	11.20
CZECHO-SLOVAKIA....	INTERNATIONAL.....	S	252	256	251	4675	6.07				

TABLE 4.7—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, AND BY STATE AND COUNTRY 12 MONTHS ENDED DECEMBER 31, 1988

STATE OR COUNTRY	OPERATION	SERV- ICE	AIRCRAFT DEPARTURES			EN- PLANED PASSENGERS	ENPLANED REVENUE TONS				
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
									PRIORITY	NON- PRIORITY	FOREIGN MAIL
DENMARK.....	INTERNA- TIONAL.....	S NS AS	1409 1 1410	1445 1445	1402 1402	125571 398 125969	1749.13 1749.13		37.82 37.82	.31 .31	6.41 6.41
DOMINICAN REPUBLIC.....	DOMESTIC.....	S	1				298	10.76			
	INTERNA- TIONAL.....	S NS AS	4257 2 4259	4293 4293	4231 4231	649991 170 650161	15004.52 15004.52		9.94 9.94	.28 .28	6.89 6.89
	TOTAL.....	S NS AS	4258 2 4260	4293 4293	4231 4231	650289 170 650459	15015.28 15015.28		9.94 9.94	.28 .28	6.89 6.89
ECUADOR.....	INTERNA- TIONAL.....	S NS AS	1256 1 1257	1276 1276	1249 1249	78073 148 78221	2642.99 2642.99		47.06 47.06	2.31 2.31	
EGYPT.....	INTERNA- TIONAL.....	S	159	159	159	25819	790.54		65.00		.46
EL SALVADOR.....	INTERNA- TIONAL.....	S	802	780	768	50901	872.58		82.86	.91	6.43
FIJI .....	INTERNA- TIONAL.....	S	55				4513.09		130.59	.90	
FINLAND.....	INTERNA- TIONAL.....	S NS AS	397 2 399	400 400	395 395	29893 421 30314	173.97 173.97		70.30 70.30	.40 .40	8.00 8.00
FRANCE .....	DOMESTIC.....	S	1	1	1		.07				
	INTERNA- TIONAL.....	S NS AS	9075 4 9079	9136 9136	9032 9032	820228 1132 821360	21093.44 21093.44		692.26 692.26	134.06 134.06	495.84 495.84
	TOTAL.....	S NS AS	9076 4 9080	9137 9137	9033 9033	820228 1132 821360	21093.51 21093.51		692.26 692.26	134.06 134.06	495.84 495.84
FRENCH ANTILLES.....	INTERNA- TIONAL.....	S NS AS	247 1 248	245 245	245 245	10891 140 11031	10.31 10.31		2.72 2.72	.17 .17	
FRENCH POLYNESIA..	INTERNA- TIONAL.....	S NS AS	356 2 358	362 362	344 344	31324 176 31500	42.64 42.64		1.84 1.94		1.33 1.33
GERMANY.....	INTERNA- TIONAL.....	S NS AS	48368 914 49282	48904 48904	47910 47910	4159225 157861 4317086	68751.49 1610.79 70362.28		10237.06 10237.06	\$411.87 \$411.87	11744.38 11744.38

TABLE 4.7—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, AND BY STATE AND COUNTRY 12 MONTHS ENDED DECEMBER 31, 1988

STATE OR COUNTRY	OPERATION	SERV. ICE.	AIRCRAFT DEPARTURES			EN-PLANED PASSENGERS	ENPLANED REVENUE TONS				
			TOTAL PER-FORMED	SCHED-ULED	SCHED-ULED COMPLET-ED		FREIGHT	EXPRESS	U.S MAIL		
									PRIORITY	NON-PRIORITY	
GREECE .....	INTERNA-TIONAL.....	S NS AS	578 5	544	541	85106 1046 86152	1659.06		117.62	74.58	34.93
			583	544	541		1659.06		117.62	74.58	34.93
GUATE-MALA .....	DOMESTIC.....	S									112
	INTERNA-TIONAL .....	S	1685	1708	1681	130175	5562.77		54.02	31.83	6.27
	TOTAL.....	S	1685	1708	1681	130175	5562.77		54.02	31.83	7.38
HAITI..... .....	INTERNA-TIONAL.....	S	1444	1466	1432	180587	3106.93		51.13	.30	
HONDURAS....	INTERNA-TIONAL.....	S	826	846	806	38809	284.59	.73	61.97	.30	
HONG KONG .....	INTERNA-TIONAL.....	S NS AS	3299 19	3383	3275	472288 935 473223	103392.02 294.40 103686.42		767.33	470.18	442.75
			3318	3383	3275				767.33	470.18	442.75
HUNGARY .....	INTERNA-TIONAL.....	S NS AS	362 2	361	351	6722 483	18.32		1.30		
			364	361	351	7205	18.32		1.30		
ICELAND .....	DOMESTIC.....	S	1	1	1	196					
	INTERNA-TIONAL.....	S	5				409.23		.01	.13	
	TOTAL.....	S	6	1	1	196	409.23		.01	.13	
INDIA .....	INTERNA-TIONAL.....	S	392	388	388	120190	5134.50		10.48		1.78
INDONESIA....	INTERNA-TIONAL.....	S		1							
IRELAND .....	INTERNA-TIONAL.....	S NS AS	1200 5	1190	1179	79331	5514.83		110.43	138.63	.02
			1205	1190	1179	79331	5514.83		110.43	138.63	.02
ISRAEL .....	INTERNA-TIONAL.....	S	809	809	806	171438	2869.94		119.80	16.91	61.18
ITALY.....	INTERNA-TIONAL.....	S	2238	2258	2217	412554	16457.57		748.75	360.91	11.32
JAMAICA.....	DOMESTIC....	S NS AS	253 1	254	251	12252 80	28.78		.02		
	INTERNA-TIONAL.....	S NS AS	254	254	251	12332	28.78		.02		
			2740 1	2775	2714	260488 78	3034.02		16.91	3.91	
			2741	2775	2714	260566	3034.02		16.91	3.91	
	TOTAL.....	S NS AS	2993 2	3029	2965	272740 158 272898	3062.80		16.93	3.91	
			2995	3029	2965		3062.80		16.93	3.91	

TABLE 4.7—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, AND BY STATE AND COUNTRY 12 MONTHS ENDED DECEMBER 31, 1988

STATE OR COUNTRY	OPERATION	SERVICE	AIRCRAFT DEPARTURES			EN-PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
									PRIORITY	NON- PRIORITY	FOREIGN MAIL
JAPAN .....	INTERNATIONAL.....	S NS AS	19119 75 19194	19116 19116	18779 18779	3044514 3044514	336733.84 1444.60 338178.44		11824.86 11824.86	7234.42 7234.42	1187.37
KENYA.....	INTERNATIONAL.....	S	133	136	133	15000	1489.12		14.60		.39
LUXEM- BOURG .....	INTERNATIONAL.....	S	1	1	1						
MALAYSIA .....	INTERNATIONAL.....	S	113	138	113		8395.44		8.30		
MEXICO.....	DOMESTIC.....	S	1001	1022	993	72322	11.64				
	INTERNATIONAL.....	S NS AS	16852 26 16878	16923 16923	16748 16748	1610039 3689 1613728	10447.32 3.74 10451.06	.36	44.79 1000.00 1044.79	2.79 2.79 2.79	3.63 3.63 3.63
	TOTAL.....	S NS AS	17853 26 17879	17945 17945	17741 17741	1682361 3689 1686050	10458.96 3.74 10462.70	.36	44.79 1000.00 1044.79	2.79 2.79 2.79	3.63 3.63 3.63
MOZAM- BIQUE .....	DOMESTIC.....	S	1	1	1		.10				
NETHER- LANDS .....	INTERNATIONAL.....	S NS AS	1219 5 1224	1221 1221	1202 1202	99243 421 99664	1464.61 61.80 1526.41		125.48 125.48	32.92 32.92	.26 .26
NETHER- LANDS ANTILLES.....	INTERNATIONAL.....	S NS AS	3196 5 3201	3221 3221	3135 3135	281176 156 281332	5444.00 5444.00		13.58 13.58	2.70 2.70	.60 .60
NEW ZEALAND.....	INTERNATIONAL.....	S	1580	1604	1565	275346	13601.76		76.75	.04	108.95
NORWAY.....	INTERNATIONAL.....	S	803	826	797	58242	356.56		26.61	.01	.51
OMAN.....	INTERNATIONAL.....	S	1				105.93		1.82		
PAKISTAN	INTERNATIONAL.....	S	153	166	153	14202	579.99		.18		.28
PANAMA.....	INTERNATIONAL.....	S NS AS	2001 2 2003	1948 1948	1887 1887	118262 118262	6662.12 6662.12		533.42 533.42	139.41 139.41	64.39 64.39
PAPUA NEW GUINEA.....	DOMESTIC.....	S	108	108	108		3.54				

TABLE 4.7—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, AND BY STATE AND COUNTRY 12 MONTHS ENDED DECEMBER 31, 1988

STATE OR COUNTRY	OPERATION	SERV- ICE	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
									PRIORITY	NON- PRIORITY	
PARAGUAY....	INTERNA- TIONAL.....	S	81	81	81	3051	17.33		1.87		
	TOTAL.....	S	189	189	189	3051	20.87		1.87		
PERU.....	INTERNA- TIONAL.....	S NS AS	160 2 162	160 160	159 159	5574 140 5714	49.92		14.13	12.01	
	INTERNA- TIONAL.....	S NS AS	879 2 881	878 878	860 860	78307 78307	2963.18 2963.18		14.13	12.01	
PHILIPPINES..	INTERNA- TIONAL.....	S	1553	1572	1534	288416	15582.09		1447.27	1011.58	82.93
POLAND.....	INTERNA- TIONAL.....	S	401	401	399	36574	13.41				
PORTUGAL....	INTERNA- TIONAL.....	S	274	269	264	45504	873.68		16.01	4.01	5.34
ROMANIA.....	INTERNA- TIONAL.....	S	104	106	103	4219	125.18		.09		
SAUDI ARABIA .....	INTERNA- TIONAL.....	S	204	209	199	7286	7.59		36.85	.21	
SEY- CHELLES ISLANDS .....	DOMESTIC....	S	2	2	2		1.70				
SINGAPORE...	INTERNA- TIONAL.....	S	778	801	776	68683	26229.72		120.63	3.28	8.12
SOUTH KOREA.....	INTERNA- TIONAL.....	S NS AS	3291 11 3302	3331 3331	3263 3263	418728 1944 420672	62061.55		1923.66	2265.24	3.42
	INTERNA- TIONAL.....	S NS AS	1505	1522	1498	210951	3259.29		368.27	263.12	7.53
SRI LANKA ...	INTERNA- TIONAL.....	S	6	17	6		295.96		.04		
SWEDEN.....	INTERNA- TIONAL.....	S NS AS	1471 1 1472	1492 1492	1466 1466	113285 45 113330	1316.97		54.13	.43	
	INTERNA- TIONAL.....	S NS AS	5164 59 5223	5209 5209	5128 5128	285361 7030 292391	13790.90		54.13	.43	
SWITZER- LAND.....	INTERNA- TIONAL.....	S NS AS	2589 14 2603	2490 2490	2434 2434	239199 402.20 239199	123615.36 124017.56		964.44	16.15	27.00
	INTERNA- TIONAL.....	S NS AS							964.44	16.15	27.00
TAIWAN.....	INTERNA- TIONAL.....	S NS AS							1304.21	274.81	834.54
									1304.21	274.81	834.54

TABLE 4.7—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, AND BY STATE AND COUNTRY 12 MONTHS ENDED DECEMBER 31, 1988

STATE OR COUNTRY	OPERATION	SERV. ICE	AIRCRAFT DEPARTURES			EN-PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
									PRIORITY	NON- PRIORITY	FOREIGN MAIL
TANZANIA.....	DOMESTIC.....	S	5	6	5	2	1.03				
THAILAND.....	INTERNA-TIONAL.....	S	.. <sup>2</sup>	743	729	127737	24269.22		263.10	65.70	73.41
TONGA .....	INTERNA-TIONAL.....	S	80	78	78	4990	74.16		18.64		
TRINIDAD & TOBAGO.....	INTERNA-TIONAL.....	S	1523	1566	1552	98399	1250.21		5.95		.01
TURKEY .....	INTERNA-TIONAL.....	S NS AS	433 139 572	434 434	430 430	35500 19115 54615	186.03 186.03		150.99	2.21	.07
UNITED ARAB EMIRATES.....	INTERNA-TIONAL.....	S	401	358	347		25012.56		166.65	9.30	
UNITED KINGDOM.....	INTERNA-TIONAL.....	S NS AS	15559 14 15573	15696 15696	15434 15434	2463824 1110 2464934	106762.54 127.45 106889.99		7408.89 1.65 7410.54	1141.85	712.85
URUGUAY.....	INTERNA-TIONAL.....	S	109	105	104	10752	521.48		.93		16.01
U S S R.....	INTERNA-TIONAL.....	S NS AS	352 3 355	337 337	332 332	24715 602 25317	48.90 48.90		3.65		
VENEZUELA.....	DOMESTIC.....	S	3	3	3		2.40				
	INTERNA-TIONAL.....	S NS AS	1981 2 1983	1987	1974	188742	8280.64		28.24	4.69	13.58
	TOTAL.....	S NS AS	1984 2 1986	1990	1977	188742	8283.04		28.24	4.69	13.58
WESTERN SAMOA.....	INTERNA-TIONAL.....	S	146	136	131	8986	152.05		7.22		
YUGO-SLAVIA.....	INTERNA-TIONAL.....	S NS AS	924 29 953	937	895	33438 2582 36020	146.13 146.13		.43		
TOTAL FC RIEGN CCUN- TRIES	DOMESTIC.....	S NS AS	52279 295 52574	52920	52225	3433766 21373 3455139	14477.48 88.70 14566.18		4958.00	261.86	1.12
									4958.00	261.86	1.12

TABLE 4.7—Continued

SUMMARY OF AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL BY TYPE OF OPERATION, BY TYPE OF SERVICE, AND BY STATE AND COUNTRY 12 MONTHS ENDED DECEMBER 31, 1988

STATE OR COUNTRY	OPERATION	SERV- ICE	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS				FOREIGN MAIL		
			TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	U.S. MAIL					
								PRIORITY	NON- PRIORITY				
OVER-ALL TOTAL FOR ALL STATES, AREAS, AND COUN- TRIES	INTERNATIONAL.....	S NS AS	200592 1423 202015	202010	197987	20946853 208247 21155100	1213325.90 5876.43 1219202.33	1.24	41701.44 1001.65 42703.09	19364.50 19364.50	16276.23 16276.23		
	TOTAL.....	S NS AS	252871 1718 254589	254930	250212	24380619 229620 24610239	1227803.38 5965.13 1233768.51	1.24	46659.44 1001.65 47661.09	19626.36 19626.36	16277.35 16277.35		
	DOMESTIC.....	S NS AS	6400635 17049 6417684	6522504	6362854	419203890 1122325 42026215	4131311.28 20107.03 4151418.31	1416.70	1493671.80 1445.69 1495117.49	66221.08 66221.08	156.50 156.50		
	INTERNATIONAL.....	S NS AS	303998 2763 306761	304754	299006	35363615 336542 3570157	1688890.41 18135.28 1707025.69	178.25	111512.42 1001.65 112514.07	27339.13 27339.13	16390.40 16390.40		
	TOTAL.....	S NS AS	6704633 19812 6724445	6827258	6661860	454567505 1458867 456026372	5820201.69 38242.31 5858444.00	1594.95	1605184.22 2447.34 1607631.56	93560.21 93560.21	16546.90 16546.90		

Note: S = Scheduled  
NS = Nonscheduled  
AS = All Service

TABLE 4.8.

AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL OPERATIONS, ALL SERVICES AT LARGE AIR TRAFFIC HUBS 12 MONTHS ENDED DECEMBER 31, 1988

COMMUNITY (AIRPORT NAME)	PERCENT OF ENPLANE- MENTS	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
		TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
								PRIORITY	NON- PRIORITY	
ATLANTA, GEORGIA (WILLIAM B HARTSFIELD INTL).....	5.06	275847	280871	274822	21824125	142790.38	.52	113653.12	136.47	
BALTIMORE, MARYLAND (BALTO/WASH INTL).....	1.01	72109	72887	71574	4369596	15383.52	.77	19390.90	79.11	
BOSTON, MASSACHUSETTS (LOGAN INTERNATIONAL)...	2.35	115180	116271	113167	10141298	117906.01	3.93	29338.64	898.78	
CHARLOTTE, NORTH CAROLINA (DOUGLAS MUNI)....	1.53	105405	107194	104593	6619780	35988.51		16950.86	4.14	
CHICAGO, ILLINOIS (MIDWAY)..... (OHARE INTERNATIONAL)...	0.74	57631	59148	57504	3174057	165.63		10.59		
DALLAS-FORT WORTH, TEXAS (LOVE FIELD)..... (DALLAS- FT.WORTH REGIONAL) .....	0.57	37580	38162	37545	2474828	543				
DETROIT & ANN ARBOR, MICHIGAN (DETROIT CITY)..... (DETROIT METROPOLITAN WAYNE CTY)..... (WILLOW RUN).....	0.00	241809	244331	240999	21014158	136225.33	9.62	75322.18	182.51	
COMMUNITY TOTAL	5.44	279390	262494	278545	23488986	136230.76	9.62	75322.18	182.51	
DENVER, COLORADO (STAPLETON INTERNATIONAL)...	3.35	187548	190372	186773	14441817	72062.38	7.11	54993.73	8.49	
DETROIT & ANN ARBOR, MICHIGAN (DETROIT CITY)..... (DETROIT METROPOLITAN WAYNE CTY)..... (WILLOW RUN).....	0.00	126318	129412	125778	9213713	36820.64	2.53	36936.31	23.67	
COMMUNITY TOTAL	2.17	133905	136082	132388	9343770	54772.44	2.53	36936.31	23.67	
HONOLULU, OAHU, HAWAII (HONOLULU INTERNATIONAL)...	1.95	84075	88313	78959	8396313	172406.67	79.14	20379.86	539.46	
HOUSTON, TEXAS (HOUSTON INTERCONTINEN- TAL)..... (WILLIAM P HOBBY).....	1.59	98023	99631	97510	681880	30047.15	489.37	20465.53	10.54	
COMMUNITY TOTAL	0.89	59648	60571	59481	3840383	2016.49	204.01	192.10	.03	
KANSAS CITY, MISSOURI (INTERNATIONAL).. (KANSAS CITY MUNI).....	1.04	67655	68170	66848	4469974	16342.12	65.21	19325.82	.45	
COMMUNITY TOTAL	0.00	3	2	2	100	1.76				
	1.04	67658	68172	66850	4470074	16343.88	65.21	19325.82	.45	

TABLE 4.8.—Continued

AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL OPERATIONS, ALL SERVICES AT LARGE AIR TRAFFIC HUBS 12 MONTHS ENDED DECEMBER 31, 1988

COMMUNITY (AIRPORT NAME)	PERCENT OF ENPLANE- MENTS	AIRCRAFT DEPARTURES			EN- PLANED PASSENGERS	ENPLANED REVENUE TONS				
		TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
								PRIORITY	NON- PRIORITY	
LAS VEGAS, NEVADA (MC CARRAN INTL).....	1.59	80431	80193	79443	6864803	7632.00	.81	6714.51	.42	
LOS ANGELES/ BURBNK/ LNG.BCH,CAL (HOLLYWOOD- BURBANK) .....	0.34	26427	26963	26369	1457951	2361.45		1084.35		
(LONG BEACH) .....	0.13	10544	10714	10459	578640	1506.70		221.75		
(LOS ANGELES INTERNATIONAL)...	4.32	200423	203007	199246	1864319	334260.27	27.21	64134.27	421.82	
(ORANGE COUNTY) .....	0.50	33644	34737	33602	2156434	1197.59		15.64	.01	
(VAN NUYS AIRPORT) .....	0.00	3	3	3		3.51				
COMMUNITY TOTAL	5.29	271041	275424	269679	22836344	339329.52	27.21	65456.01	421.83	
MEMPHIS, TENNESSEE (MEMPHIS INTERNATIONAL)...	1.05	103759	105176	103499	4532572	579165.05		20649.30	.18	
MIAMI/FT LAUDERDALE, FLORIDA (FT. LAUDERDALE- HOLLYWOOD INTL).....	0.90	45833	45937	45179	3899039	29188.10	.35	7224.70	3.92	
(MIAMI INTERNATIONAL)...	2.19	99787	100429	98194	9461760	149309.21	4.04	25591.41	922.57	
(OPA LOCKA).....	0.00	2	1	1	80				5.58	
COMMUNITY TOTAL	3.10	145622	146367	143374	13360879	178497.31	4.39	32816.11	926.49	
MINNEAPOLIS/ST. PAUL,MINNESOTA (MINNEAPOLIS-ST PAUL INTL).....	1.89	109735	112095	109001	8170952	56160.79	2.66	42144.74	32.59	
NEWARK, NEW JERSEY (NEWARK).....	2.51	140123	143097	138781	10837963	138205.17	46.11	32918.87	702.33	
NEW YORK, NEW YORK (JOHN F KENNEDY INTL).....	2.47	79515	80516	78764	10660421	219483.04		62157.22	5910.34	
(LA GUARDIA).....	2.62	129575	130302	126811	11321800	21186.93	12.58	39334.57	618 49	
(WORLD TRADE CENTER).....	0.00	108	108	108		3.21				
COMMUNITY TOTAL	5.10	209198	210926	205683	21982221	240673.18	12.58	101491.79	6528 83	
ORLANDO, FLORIDA (HERNDON) . . . . .	0.00	2	2	2		2.02				
(ORLANDO INTERNATIONAL)...	1.73	94562	95092	93366	7473086	35480.74	5.04	12173.46	2.77	
COMMUNITY TOTAL	1.73	94564	95094	93368	7473086	35482.76	5.04	12173.46	2.77	
PHILADELPHIA,PA/ CAMDEN,NJ (INTERNATIONAL)..	1.54	93318	95132	92722	6633677	45019.46	4.47	47263 35	187.50	
PHOENIX, ARIZONA (PHOENIX SKY HARBOR INTL).....	2.19	132910	133622	132415	9455324	32504.39	.57	16270 50	.01	

TABLE 4.8.—Continued

AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL OPERATIONS, ALL SERVICES AT LARGE AIR TRAFFIC HUBS 12 MONTHS ENDED DECEMBER 31, 1988

COMMUNITY (AIRPORT NAME)	PERCENT OF ENPLANE- MENTS	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
		TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
								PRIORITY	NON- PRIORITY	FOREIGN MAIL
PITTSBURGH, PA/ WHEELING W VA (ALLEGHENY COUNTY).....	0.00	1	1	1		1.30				
(GREATER PITTSBURGH).....	1.94	126194	127416	125586	8378639	16369.61	1.03	25294.30	264.56	
COMMUNITY TOTAL	1.94	126195	127417	125587	8378639	16370.91	1.03	25294.30	264.56	
ST. LOUIS, MISSOURI (LAMBERT-ST LOUIS MUNI).....	2.21	140307	142721	139467	9554454	46452.29	48.95	56108.88	33.97	
SALT LAKE CITY, UTAH (SALT LAKE CITY INTL).....	1.10	74929	75436	74763	4729937	33471.03	12.82	16176.07	.06	
SAN DIEGO, CALIFORNIA (SAN DIEGO INTNL. LINDBERGH FLD)...	1.20	68233	69128	67991	5180587	18230.72	176.10	7685.29	1.65	
SAN FRANCISCO/ OAKLAND, CAL (BUCHANAN FIELD).....	0.01	1288	1334	1288	59013	23.78		25.49		
(OAKLAND METROPOLITAN INTL).....	0.42	35682	36339	35687	1825623	63413.83	.63	5054.94	.59	
(SAN FRANCISCO INTL).....	3.09	162316	165282	161761	13347979	196429.80	16.61	47359.76	2312.48	10.48
COMMUNITY TOTAL	3.53	199286	202955	198736	15232615	259867.41	17.24	52440.19	2313.07	10.48
SEATTLE/TACOMA, WASHINGTON (BOEING FIELD INTL).....	0.00	1838	1835	1834	418	13588.65		.33	.17	
(SEATTLE- TACOMA INTERNATIONAL)...	1.58	108016	109539	107327	6825513	142338.83	2.89	46716.20	251.12	63.96
(TACOMA INDUSTRIAL).....	0.00	2	2	2		.40				
(MCCHORD AFB)....	0.00	2	2	2		.30				
COMMUNITY TOTAL	1.58	109858	111378	109165	6825931	155928.18	2.89	46716.53	251.29	63.96
TAMPA&ST.PTSBG/ CLWTR&LKLN.D.FLA (TAMPA INTERNATIONAL)...	1.04	64852	65637	64412	4495349	19685.14	.74	14857.66	2.21	
(ST. PETERSBURG/ CLWTR INTL).....	0.01	970	1006	969	43294	9.85		.31	.77	
COMMUNITY TOTAL	1.05	65822	66643	65381	4538643	19694.99	.74	14857.97	2.98	
WASHINGTON, DIST. OF COL. (DULLES INTERNATIONAL)...	1.00	79477	82038	79115	4327179	54496.96	.47	24045.35	404.86	
(WASHINGTON NATIONAL).....	1.68	96470	98065	95210	7259448	9018.94	15.04	32050.11	381.88	.02
COMMUNITY TOTAL	2.69	175947	180103	174325	11586627	63515.90	15.51	56095.46	786.74	.02
OVER-ALL TOTAL, LARGE HUBS.....	74.58	4201615	4267556	4168475	321754139	3394412.17	1287.06	1208704.43	15528.87	189.56

TABLE 4.9.

AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL OPERATIONS, ALL SERVICES AT MEDIUM AIR TRAFFIC HUBS 12 MONTHS ENDED DECEMBER 31, 1988

COMMUNITY (AIRPORT NAME)	PERCENT OF ENPLANE- MENTS	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
		TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
								PRIORITY	NON- PRIORITY	FOREIGN MAIL
ALBUQUERQUE, NEW MEXICO (ALBUQUERQUE SUNPRRT/KIRTLND AFB).....	0.49	34074	34345	33913	2113308	5213.14	.07	4547.32	5.48	
AUSTIN, TEXAS (ROBERT MUELLER MUNI).....	0.45	31294	31593	31227	1922447	8098.17	.45	3815.54	.37	
BUFFALO&NIAGARA FALLS, NEW YORK (GREATER BUFFALO INTERNATIONAL).... (NIAGARA FALLS INTERNATIONAL)...	0.41	31390	31721	31039	1780070	4964.00	.91	4291.65	.13	
COMMUNITY TOTAL	0.41	31391	31721	31039	1780070	4964.00	.91	4291.65	.13	
CINCINNATI, OHIO (GREATER CINCINNATI)..... (LUKEN FIELD).....	0.82	64686	65419	64487	3542865	15487.00	.04	17722.95	14.16	.09
COMMUNITY TOTAL	0.82	64687	65420	64488	3542865	15488.30	.04	17722.95	14.16	.09
CLEVELAND, OHIO (HOPKINS INTERNATIONAL)...	0.82	68703	69591	67956	3547258	18812.00	1.20	9638.24	.07	
COLUMBUS, OHIO (PORT COLUMBUS INTERNATIONAL).... (LOCKBOURN AFB)....	0.41	30337	30853	30164	1758894	1637.33	.03	8944.48		
COMMUNITY TOTAL	0.41	35344	35989	35048	1758894	128689.49	.03	14331.59	426.65	
DAYTON, OHIO (JAMES M COX DAYTON MUNI).....	0.50	37555	38086	37477	2140470	17848.43		5689.79		.01
EL PASO, TEXAS (EL PASO INTERNATIONAL)...	0.33	25167	25302	25109	1427258	4333.68	4.03	1346.66		
FT. MYERS, FLA. (SOUTHWEST).....	0.34	20498	20751	20366	1460146	1235.24	.02	1951.75	.49	
HARTFD, CON/ SPGFLD& WESTFLD, MASS (BRADLEY INTL).....	0.54	32590	33097	32417	2321986	9807.08	.40	15621.85	8.78	
INDIANAPOLIS, INDIANA (INDIANAPOLIS MUNI/WEIR- COOK).....	0.56	43503	43067	42361	2405638	13545.03		9910.44	4.58	
JACKSONVILLE, FLORIDA (JACKSONVILLE INTERNATIONAL)...	0.30	25540	25918	25399	1287939	5486.49	.24	5819.06		
KAHULUI, MAUI, HAWAII (KAHULUI).....	0.47	30440	32988	28292	2025671	6567.63		1441.88	129.74	
LIHUE, KAUAI, HAWAII (LIHUE) .....	0.29	17624	19413	16445	1264461	1419.36		675.82	6.19	

TABLE 4.9.—Continued

AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL OPERATIONS, ALL SERVICES AT MEDIUM AIR TRAFFIC HUBS 12 MONTHS ENDED DECEMBER 31, 1988

COMMUNITY (AIRPORT NAME)	PERCENT OF ENPLANE- MENTS	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
		TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
								PRIORITY	NON- PRIORITY	FOREIGN MAIL
MILWAUKEE, WISCONSIN (GENERAL MITCHELL FIELD) ..	0.41	34741	35446	34428	1779140	7960.75	1.14	6821.49	1362.87	
NASHVILLE, TENNESSEE (METROPOLITAN)....	0.75	58617	59298	58376	3244014	5362.26	.04	7547.78	.22	
NEW ORLEANS, LOUISIANA (INTERNATIONAL/ MOISANT FIELD)..... (LAKEFRONT) .....	0.74	44388	44913	44163	3199970	17742.06	.14	8068.07		
0.00	2	1	1	1	86					
COMMUNITY TOTAL	0.74	44390	44914	44164	3200056	17742.06	.14	8068.07		
NORFLK/VA BCH/ PTSMH/ CHESPEKE, VA (NORFOLK REGIONAL) .....	0.35	2900.	29412	28801	1491928	4612.27	.15	2777.67	.01	
OKLAHOMA CITY, OKLAHOMA (WILL ROGERS WORLD).....	0.35	27671	28027	27520	1492526	7894.13	3.76	4336.76	.12	
ONTARIO/SAN BERNARD/ RIVERSE, CA (ONTARIO INTERNATIONAL)...	0.55	37941	38408	37777	2353959	8067.20	2.08	8810.91	.04	
PORTLAND, OREGON (PORTLAND INTERNATIONAL)...	0.65	68037	69102	67757	2823311	82530.11	.19	16526.79	1.62	.02
RALEIGH/DURHAM, NORTH CAROLINA (RALEIGH- DURHAM).....	0.82	63360	64588	63103	3517525	15292.83		7603.22	2.05	
RENO, NEVADA (RENO INTL) .....	0.34	21982	22289	21913	1452057	4212.31		1477.85	.03	
ROCHESTER, NEW YORK (ROCHESTER- MONROE COUNTY).	0.29	26156	26532	26020	1241528	9707.78		3343.01	.04	
SACRAMENTO, CALIFORNIA (SACRAMENTO METROPOLITAN)....	0.42	37074	38061	37010	1792347	3516.59		8050.73	.25	
SAN ANTONIO, TEXAS (SAN ANTONIO INTERNATIONAL)...	0.55	36535	36837	36438	2392332	8160.22	4.61	6950.52		
SAN JOSE, CALIFORNIA (PALO ALTO MUNICIPAL)..... (SAN JOSE MUNI) ....	0.00	1	1	1		.20				
0.64	51559	52696	51507	2774444	17457.85	98.68		2993.18	.28	
COMMUNITY TOTAL	0.64	51560	52697	51508	2774444	17458.05	98.68	2993.18	.28	
SAN JUAN, PUERTO RICO (LUIS MUÑOZ MARIN INTL).....	0.76	24987	25146	24654	3263722	57393.22		4492.41	732.31	

TABLE 4.9.—Continued

AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL OPERATIONS, ALL SERVICES AT MEDIUM AIR TRAFFIC HUBS 12 MONTHS ENDED DECEMBER 31, 1988

COMMUNITY (AIRPORT NAME)	PERCENT OF ENPLANE- MENTS	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
		TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		U.S. MAIL		FOREIGN MAIL		
						FREIGHT	EXPRESS			
SYRACUSE, NEW YORK (CLARENCE E HANCOCK).....	0.34	38325	38999	38152	1473759	12651.59	.02	4307.90	.07	
TUCSON, ARIZONA (TUCSON INTL).....	0.33	20315	20440	20220	1407026	3294.22	1.39	3513.41	.36	
TULSA, OKLAHOMA (TULSA INTL).....	0.32	26877	27162	26726	1362402	7445.30	.28	4769.36	.25	1.12
WEST PALM BEACH/ PALM BEACH, FLA (PALM BEACH INTERNATIONAL)...	0.55	28215	28618	28113	2360993	1660.48	3.15	2646.66		
OVER-ALL TOTAL, MEDIUM HUBS.....	15.86	1174198	1193257	1164217	68421480	516469.41	123.02	201241.67	2697.16	1.24

TABLE 4.10.

AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL OPERATIONS, ALL SERVICES AT SMALL AIR TRAFFIC HUBS 12 MONTHS ENDED DECEMBER 31, 1988

COMMUNITY (AIRPORT NAME)	PERCENT OF ENPLANE- MENTS	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
		TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
								PRIORITY	NON- PRIORITY	FOREIGN MAIL
AKRON/CANTON, OHIO (AKRON-CANTON)....	0.06	5398	5368	5194	262186	94.61		875.70		
ALBANY, NEW YORK (ALBANY COUNTY)...	0.19	13883	14131	13834	817167	1490.23		2817.62	.03	
ALLENTOWN/ BETHLEHEM/ EASTON, PA (ALLENTOWN- BETHLEHEM- EASTON).....	0.07	6583	6791	6560	295168	1612.15		44.79	1.80	
AMARILLO/BORGER, TEXAS (AMARILLO AIR TERMINAL).....	0.10	7825	7928	7800	433360	237.66		690.87		
ANCHORAGE, ALASKA (ANCHORAGE INTERNATIONAL).... (ELMENDORF AFB)...	0.24 0.00	30246 87	29470	28330	1052204 4166	407145.60 827.25		17811.83 3.01	47065.72 1.69	77.09
COMMUNITY TOTAL	0.24	30333	29470	28330	1056370	407972.85		17814.84	47067.41	77.09
BATON ROUGE, LOUISIANA (RYAN).....	0.09	8968	9108	8925	388419	637.75	.14	816.10		
BILLINGS, MONTANA (LOGAN FIELD).....	0.06	7642	7748	7623	237599	1040.75	.16	1608.59		
BIRMINGHAM, ALABAMA (BIRMINGHAM MUNI).....	0.23	21011	21323	20883	983167	7034.20	1.53	4062.99		
BOISE, IDAHO (BOISE AIR TERMINAL/GOWEN FLD).....	0.12	18013	18410	17970	525916	24572.82		13487.12		
BROWNSVILLE/ HRLGN/SAN BETO, TEX (HARLINGEN INDUSTRIAL AIRPARK)..... (RIO GRANDE VALLEY INTL.).....	0.12 0.06	7259 4	7348 4	7254 4	509708	2192.57 1.95	9.82	9.26		
COMMUNITY TOTAL	0.12	7263	7352	7258	509708	2194.52	9.82	9.26		
BURLINGTON, VERMONT (BURLINGTON INTERNATIONAL)....	0.09	7256	7391	7240	375329	1471.99		1078.23		
CEDAR RAPIDS/IOWA CITY, IOWA (CEDAR RAPIDS MUNI).....	0.08	8224	8317	8158	327041	5778.58		124.85		
CHARLESTON, SOUTH CAROLINA (CHARLESTON AFB/MUNI).....	0.15	15024	15248	14880	662398	1541.25		1247.56	11	
CHARLESTON/ DUNBAR, W. VIRGINIA										

TABLE 4.10.—Continued

AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL OPERATIONS, ALL SERVICES AT SMALL AIR TRAFFIC HUBS 12 MONTHS ENDED DECEMBER 31, 1988

COMMUNITY (AIRPORT NAME)	PERCENT OF ENPLANE- MENTS	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLA NED REVENUE TONS			U.S. MAIL		FOREIGN MAIL
		TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	PRIORITY	NON- PRIORITY		
(KANAWHA).....	0.05	6721	6883	6685	223401	476.09		217.48			
CHARLOTTE AMALIE, ST. THOMAS, VI (HARRY S. TRUMAN).....	0.08	4033	4071	4010	328524	323.81		305.31	126.72		
CHATTANOOGA, TENNESSEE (LOVELL FIELD).....	0.06	5297	5351	5229	259032	632.56		447.11			
COLORADO SPRINGS, COLORADO (PETERSON FIELD).....	0.15	12640	12850	12503	641126	437.44		146.78			
COLUMBIA, SOUTH CAROLINA (COLUMBIA METROPOLITAN).....	0.12	11224	11458	11114	531224	945.71		2270.67	.11		
CORPUS CHRISTI, TEXAS (CORPUS CHRISTI INTERNATIONAL).....	0.09	5803	5898	5782	394395	228.28	5.83	526.59			
DAYTONA BEACH, FLORIDA (DAYTONA BEACH REGIONAL).....	0.10	7864	7958	7829	433958	474.56		92.52	.08		
DES MOINES, IOWA (DES MOINES MUNI).....	0.16	13582	15759	15484	708471	1294.64		8224.84	.15		
EUGENE, OREGON (MAHLON SWEET FIELD).....	0.05	9297	9602	9291	227646	3112.77		2195.50			
FORT WAYNE, INDIANA (MUNICIPAL/BAER FIELD).....	0.06	8497	8874	8440	259287	1099.40		476.64			
FRESNO, CALIFORNIA (FRESNO AIR TERMINAL).....	0.08	16763	17211	16725	342167	798.28		971.12	30.50		
GRAND RAPIDS, MICHIGAN (KENT COUNTY).....	0.14	11556	11748	11464	596869	3120.13		1744.94			
GREENSBORO/HIGH PT/WINSTN, N.C. (GREENSBORO- HIGH PT-WINSTN REG.).....	0.23	23824	24229	23542	993682	9737.69		3865.93			
GREENVILLE & SPARTANBURG, S.C. (GREENVILLE- SPARTANBURG).....	0.11	9814	9982	9680	506508	501.98		2152.94	.09		
GUAM, GUAM (AGANA FIELD).....	0.11	4369	3851	3798	487063	11788.25	101.02	1850.93	22.54	1.19	
HARRISBURG/YORK, PA. (HARRISBURG INTERNATIONAL).....	0.10	9612	9780	9545	420741	6232.51		176.42			
HILO, HAWAII, HAWAII											

TABLE 4.10.—Continued

AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL OPERATIONS, ALL SERVICES AT SMALL AIR TRAFFIC HUBS 12 MONTHS ENDED DECEMBER 31, 1988

COMMUNITY (AIRPORT NAME)	PERCENT OF ENPLANE- MENTS	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS				
		TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL		
								PRIORITY	NON- PRIORITY	FOREIGN MAIL
(GENERAL LYMAN FIELD).....	0.13	9587	8963	8492	552553	15055.00		1109.89	.57	
HUNTSVILLE, ALABAMA (MADISON COUNTY) .....	0.08	7357	7462	7303	355930	323.88		454.76	.08	
INDIO/PALM SPRINGS, CALIFORNIA (PALM SPRINGS MUNI).....	0.07	6470	6694	6457	300029	145.13		19.42		
ISLIP, LONG ISLAND, NEW YORK (LONG ISLAND- MACARTHUR) .....	0.12	8540	8818	8533	512797	302.58		2253.21		
JACKSON-VICKSBURG, MISS. (ALLEN C THOMPSON FIELD)...	0.10	9908	10039	9882	424902	414.80		1854.87		
KAILUA-KONA, HAWAII, HAWAII (KE-AHOLE) ....	0.19	13475	13067	12236	836685	6002.60		761.14		
KNOXVILLE, TENNESSEE (MC GHEE TYSON) ....	0.12	11178	11300	11100	531790	4717.73		1604.66		.01
LEXINGTON/ FRANKFORT, KENTUCKY (BLUE GRASS).....	0.08	10531	10669	10492	331667	457.36		1401.91		
LINCOLN, NEBRASKA (LINCOLN MUNI).....	0.05	5444	5482	5379	218908	154.92		15.81		
LITTLE ROCK, ARKANSAS (ADAMS FIELD).....	0.20	15368	15542	15317	879988	830.90		3491.65		
LOUISVILLE, KENTUCKY (STANDIFORD FIELD).....	0.23	26257	26651	26114	1013770	8935.12	.11	5284.28		
LUBBOCK, TEXAS (LUBBOCK REGIONAL).....	0.14	11335	11435	11315	583243	5549.89		569.00		
MADISON, WISCONSIN (TRUAX FIELD) .....	0.09	9477	9713	9395	373288	2031.53		744.70	223.00	
MELBOURNE, FLORIDA (CAPE KENNEDY REGIONAL).....	0.07	5969	6081	5939	291352	157.72		19.23	1.57	
MIDLAND/ODESSA, TEXAS (MIDLAND REGIONAL) .....	0.14	9930	9997	9911	602286	533.14		105.88		
MOBILE, AL/ PASCAGOULA, MISS (BATES FIELD).....	0.09	8969	9217	8935	373046	4384.86	.19	236.24	.15	
MOLINE, ILLINOIS/ DAVENPORT, IOWA (QUAD-CITY).....	0.06	8737	8954	8638	253130	257.03		50.45		

TABLE 4.10.—Continued

AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL OPERATIONS, ALL SERVICES AT SMALL AIR TRAFFIC HUBS 12 MONTHS ENDED DECEMBER 31, 1988

COMMUNITY (AIRPORT NAME)	PERCENT OF ENPLANE- MENTS	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS			
		TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL	FOREIGN MAIL
PRIORITY	NON- PRIORITY								
MYRTLE BEACH, SOUTH CAROLINA (GRAND STR...).....	0.05	4053	4126	4044	229386	173.55		7.34	
OMAHA, NEBRASKA (EPPLEY AIRFIELD).....	0.24	21177	21289	20889	1051802	3765.45	3.75	10174.72	5.66
PENSACOLA, FLORIDA (PENSACOLA REGIONAL).....	0.08	7274	7378	7231	362765	896.50	.05	1620.77	
PORTLAND, MAINE (PORTLAND INTERNATIONAL JETPORT).....	0.14	9403	9638	9386	612800	2508.86	9.03	1400.53	
PROVIDENCE, RHODE ISLAND (THEODORE FRANCIS GREEN STATE).....	0.22	14021	14294	13942	944843	2166.87	.02	2758.70	.83
RICHMOND, VIRGINIA (RICHARD E BYRD FLYING FIELD).....	0.20	20514	20738	20363	850593	3992.39		3271.74	
ROANOKE, VIRGINIA (ROANOKE MUNI).....	0.06	7186	7454	7139	246062	118.49		823.79	
SAGINAW/BAY CITY/ MIDLAND,MICH. (TRI CITY).....	0.05	4041	4108	3984	222619	175.43		170.30	
SAN JUAN, BARBARA CALIFORNIA (SAN JUAN BARBARA).. (SAN MARIA PUBLIC).....	0.05	7103	7218	7100	217767	827.33			
SAN MARIA PUBLIC).....	0.00	1204	1241	1172	4197	184.74			
COMMUNITY TOTAL	0.05	8307	8459	8272	221964	1012.07			
SARASOTA/ BRADENTON, FLORIDA (SARASOTA- BRADENTON).....	0.20	13384	13568	13317	842674	534.49	.05	14.30	.01
SAVANNAH, GEORGIA (SAVANNAH MUNI)...	0.12	11710	12015	11648	531289	1030.24		453.28	
SHREVEPORT, LOUISIANA (GREATER SHREVEPORT MUNI).....	0.07	8257	8378	8229	285340	5491.77		1112.78	
SIOUX FALLS, SOUTH DAKOTA (JOE FOSS FIELD).....	0.05	6199	6307	6154	222704	914.89		1521.57	
SOUTH BEND, INDIANA (ST JOSEPH COUNTY).....	0.06	6942	7230	6889	244615	2324.55		20.35	
SPOKANE, WASHINGTON (SPOKANE INTERNATIONAL)....	0.17	25544	26122	25462	744014	21417.71		7753.19	
(FELTS FIELD).....	0.00	2	2	2		1.51			
COMMUNITY TOTAL	0.17	25546	26124	25464	744014	21419.22		7753.19	

TABLE 4.10.—Continued

AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL OPERATIONS, ALL SERVICES AT SMALL AIR TRAFFIC HUBS 12 MONTHS ENDED DECEMBER 31, 1988

COMMUNITY (AIRPORT NAME)	PERCENT OF ENPLANE- MENTS	AIRCRAFT DEPARTURES			EN- PLANED PASSEN- GERS	ENPLANED REVENUE TONS				FOREIGN MAIL
		TOTAL PER- FORMED	SCHED- ULED	SCHED- ULED COMPLET- ED		FREIGHT	EXPRESS	U.S. MAIL	PRIORITY	
TALLAHASSEE, FLORIDA (TALLAHASSEE MUNI) .....	0.09	9231	9355	9187	384805	1709.02		719.96	.15	
TOLEDO, OHIO (TOLEDO EXPRESS)..	0.06	6078	6155	6034	243785	168.59		231.40		
WICHITA, KANSAS (WICHITA MUNI).....	0.14	14077	14266	13977	602349	10649.03	25.44	2911.40		
OVER-ALL TOTAL, SMALL HUBS .....	7.30	696251	705056	687363	31507695	606189.11	157.14	125287.46	47481.56	78.29

TABLE 4.11

TOP 100 AIRPORTS IN RANK ORDER BY TOTAL ENPLANED PASSENGERS  
 LARGE SCHEDULED CERTIFICATED AIR CARRIERS SCHEDULED AND  
 NONSCHEDULED OPERATIONS 1988

RANK	AIRPORT	TOTAL ENPLANED PASSENGERS
1	Chicago (O'Hare), IL .....	26,596,800
2	Atlanta, GA .....	21,824,125
3	Dallas/Ft. Worth (Regional), TX .....	21,014,158
4	Los Angeles, CA .....	18,643,319
5	Denver, CO .....	14,441,817
6	San Francisco, CA .....	13,347,979
7	New York (La Guardia), NY .....	11,321,800
8	Newark, NJ.. .....	10,837,963
9	New York (John F. Kennedy), NY .....	10,660,421
10	Boston, MA.....	10,41,298
11	St. Louis, MO .. .	9,554,454
12	Miami, FL.....	9,461,760
13	Phoenix, AZ .. .	9,455,324
14	Detroit, MI .. .	9,213,713
15	Honolulu, Oahu, HI .....	8,396,313
16	Pittsburgh, PA .....	8,378,639
17	Minneapolis/St. Paul, MN.....	8,170,952
18	Orlando, FL.....	7,473,086
19	Washington (National), DC .....	7,259,448
20	Houston (Intercontinental), TX .....	6,871,886
21	Las Vegas, NV .....	6,864,803
22	Seattle-Tacoma, WA .....	6,825,513
23	Philadelphia, PA.....	6,633,677
24	Charlotte, NC .....	6,619,780
25	San Diego, CA .. .	5,180,587
26	Salt Lake City, UT.....	4,729,937
27	Memphis, TN .. .	4,532,572
28	Jampa, FL .....	4,495,349
29	Kansas City, MO .. .	4,469,974
30	Baltimore, MD.....	4,369,596
31	Washington (Dulles Int'l), DC .....	4,327,179
32	Ft. Lauderdale, FL .....	3,899,039
33	Houston (William P. Hobby), TX .....	3,840,383
34	Cleveland, OH .. .	3,547,258
35	Cincinnati, OH .. .	3,542,865
36	Raleigh/Durham, NC .. .	3,517,525
37	San Juan, PR .. .	3,263,722
38	Nashville, TN .. .	3,244,014
39	New Orleans, LA .....	3,199,970
40	Chicago (Midway), IL .....	3,174,057
41	Portland, OR .. .	2,823,311
42	San Jose, CA .. .	2,774,444
43	Dallas (Love Field), TX .....	2,45, 8
44	Indianapolis, IN .....	2,405,638
45	San Antonio, TX .....	2,392,332
46	West Palm Beach, FL .....	2,360,993
47	Ontario, CA .. .	2,353,959
48	Hartford, CT .. .	2,321,986
49	Orange County, CA .....	2,156,434
50	Dayton, OH .. .	2,140,470
51	Albuquerque, NM .. .	2,113,308
52	Kahului, Maui, HI .. .	2,025,671
53	Austin, TX .. .	1,922,447
54	Oakland, CA .. .	1,825,623
55	Sacramento, CA .. .	1,792,347
56	Buffalo, NY .. .	1,780,070
57	Milwaukee, WI .. .	1,779,140
58	Columbus, OH .. .	1,758,894
59	Oklahoma City, OK .....	1,492,526
60	Norfolk, VA .. .	1,491,928
61	Syracuse, NY .. .	1,473,759
62	Ft. Myers, FL .. .	1,460,146
63	Burbank, CA .. .	1,457,951
64	Reno, NV .. .	1,452,057
65	El Paso, TX .. .	1,427,258
66	Tucson, AZ .. .	1,407,026
67	Tulsa, OK .. .	1,362,402
68	Jacksonville, FL .. .	1,287,939
69	Lihue, Kauai, HI .. .	1,264,461
70	Rochester, NY .. .	1,241,528

TABLE 4.11—Continued

TOP 100 AIRPORTS IN RANK ORDER BY TOTAL ENPLANED PASSENGERS  
LARGE SCHEDULED CERTIFICATED AIR CARRIERS SCHEDULED AND  
NONSCHEDED OPERATIONS 1988

RANK	AIRPORT	TOTAL ENPLANED PASSENGERS
71 .....	Anchorage, AK .....	1,052,204
72 .....	Omaha, NE .....	1,051,802
73 .....	Louisville, KY .....	1,013,770
74 .....	Greensboro, NC .....	993,682
75 .....	Birmingham, AL .....	983,167
76 .....	Providence, RI .....	944,843
77 .....	Little Rock, AR .....	879,988
78 .....	Richmond, VA .....	850,593
79 .....	Sarasota, FL .....	842,674
80 .....	Kailua-Kona, Hawaii, HI .....	836,685
81 .....	Albany, NY .....	817,167
82 .....	Spokane, WA .....	744,014
83 .....	Des Moines, IA .....	708,471
84 .....	Charleston, SC .....	662,398
85 .....	Colorado Springs, CO .....	641,126
86 .....	Portland, ME .....	612,800
87 .....	Wichita, KS .....	602,349
88 .....	Midland, TX .....	602,286
89 .....	Grand Rapids, MI .....	596,869
90 .....	Lubbock, TX .....	583,243
91 .....	Long Beach, CA .....	578,640
92 .....	Hilo, HI .....	552,553
93 .....	Knoxville, TN .....	531,790
94 .....	Savannah, GA .....	531,289
95 .....	Columbia, SC .....	531,224
96 .....	Boise, ID .....	525,916
97 .....	Islip, NY .....	512,797
98 .....	Brownsville, TX .....	509,708
99 .....	Greenville, SC .....	506,508
100 .....	Guam, Guam .....	487,063

## V. U.S. CIVIL AIR CARRIER FLEET

U.S. air carrier fleet data shown in this chapter were developed from monthly Aircraft/Engine Utilization Reports submitted by air carrier operators. The aircraft population discussed here is not an inventory of the aircraft owned by the air carriers, but represents the aircraft reported in air carrier use during the last quarter of the year.

Prior to 1987, the fleet size was the number of aircraft reported in operation by the carriers in December. Some of the carriers do not report each month. To adjust for this undercount, beginning in 1987, the fleet size is the monthly average of the number of aircraft reported in operation for the last quarter of the year. For example, if the carrier reported for two months, the fleet count is the average for the two months. If the carrier did not report any aircraft in the last quarter, there is no fleet data for that carrier.

**TABLE 5.1**  
**TOTAL AIRCRAFT REPORTED IN OPERATION BY AIR CARRIERS BY TYPE OF AIRCRAFT 1979 - 1988**

Year	Total	Fixed Wing				Piston	Total Rotary- Wing		
		Total Fixed- Wing	Turbine						
			Total	Turbojet	Turboprop				
1979.....	3,609	3,608	3,052	2,486	566	547	1		
1980.....	3,808	3,806	3,218	2,531	687	588	2		
1981.....	3,973	3,969	3,363	2,511	852	603	4		
1982.....	4,072	4,067	3,501	2,674	827	566	5		
1983.....	4,203	4,194	3,643	2,767	876	551	9		
1984.....	4,370	4,358	3,915	2,959	956	443	12		
1985.....	4,678	4,673	4,240	3,164	1,076	433	5		
1986.....	4,909	4,907	4,487	3,283	1,204	420	2		
1987.....	5,253	5,240	4,819	3,575	1,244	421	13		
1988.....	5,660	5,652	5,290	3,915	1,375	362	8		

NOTE Beginning in 1987, the number of aircraft is the monthly average of the number of aircraft reported in use for the last three months of the year. Prior to 1987, it was the number of aircraft reported in use during December of the year.

Source Air Carrier Aircraft Utilization and Propulsion Reliability Report; Aviation Standards National Field Office, Federal Aviation Administration.

TABLE 5.2

AIRCRAFT REPORTED IN OPERATION BY AIR CARRIERS, BY MANUFACTURER AND MODEL 1979 - 1988

Aircraft Make and Model	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979
<b>TOTAL.....</b>	<b>5,660</b>	<b>5,253</b>	<b>4,909</b>	<b>4,678</b>	<b>4,370</b>	<b>4,204</b>	<b>4,702</b>	<b>3,970</b>	<b>3,808</b>	<b>3,609</b>
Turbojet-4-engine—total .....	427	382	322	322	349	309	354	365	441	517
Boeing B707 .....	31	31	35	27	22	24	55	66	146	175
Boeing B720 .....	—	—	—	—	—	1	1	2	3	7
Boeing B747 .....	171	156	150	151	156	146	144	147	144	131
British Aerospace Aircraft Groupe BAE146 .....	57	57	25	29	14	3	—	—	—	—
Concorde .....	—	—	—	—	—	—	—	—	—	9
Convair CV22 .....	—	—	—	—	—	2	2	2	1	—
Convair CV30 .....	—	—	—	—	—	—	1	4	5	6
Douglas DC8 .....	108	138	112	115	157	133	151	144	142	188
Lockheed L1329 .....	—	—	—	—	—	—	—	—	—	1
Turbojet-3-engine—total .....	1,542	1,469	1,466	1,488	1,438	1,393	1,387	1,363	1,347	1,256
Boeing B727 .....	1,246	1,168	1,172	1,195	1,161	1,122	1,110	1,096	1,092	1,029
Douglas DC10 .....	184	185	180	179	174	155	166	161	153	140
Lockheed L1011 .....	112	116	114	114	103	116	111	106	102	87
Turbojet-2-engine—total .....	1,946	1,724	1,495	1,354	1,172	1,065	933	783	743	713
Airbus A300 .....	57	52	52	46	38	34	30	25	19	12
Airbus A310 .....	19	13	7	4	—	—	—	—	—	—
Boeing B737 .....	706	633	555	476	391	348	290	236	220	206
Boeing B757 .....	122	95	73	48	19	15	2	—	—	—
Boeing B767 .....	126	83	69	59	53	49	13	—	—	—
British Aircraft BAC111 .....	30	39	45	32	33	36	36	27	27	28
Canadair CL600 .....	—	—	—	—	—	—	1	—	—	—
Cessna C500/C501 .....	—	—	—	2	1	1	2	1	5	4
Dassault MD10 .....	—	—	—	—	2	—	—	—	—	—
Dassault MD20 .....	—	—	—	2	9	12	23	27	42	44
Douglas DC9 .....	837	760	643	641	594	557	509	447	394	381
Fokker F28 .....	47	47	50	41	23	6	11	9	—	—
Grumman G1159 .....	—	—	—	—	1	2	3	5	6	—
Hamberger Flugzeugbam HFB320 .....	—	—	—	—	1	1	—	—	—	4
Hawker-Siddeley HS125 .....	—	—	—	—	—	—	2	—	—	—
Israel Aircraft 1123 .....	—	—	—	—	—	—	—	—	—	1
Israel Aircraft 1124 .....	—	—	—	—	—	—	1	—	—	—
Learjet LR23 .....	—	—	—	—	—	—	3	—	2	5
Learjet LR24 .....	—	—	—	—	—	—	1	3	3	3
Learjet LR25 .....	1	—	—	—	—	—	—	1	7	6
Learjet LR35 .....	1	2	1	3	8	4	3	—	3	4
Learjet LR55 .....	—	—	—	—	—	—	1	—	—	—
Rockwell International NA265 .....	—	—	—	—	—	—	—	1	—	2
Sud Aviation E210 .....	—	—	—	—	—	—	1	2	2	6
Sud Aviation SN601 .....	—	—	—	—	—	—	—	2	2	3
Turboprop-4-engine—total .....	95	102	96	108	109	99	116	105	92	81
Canadair CL44 .....	6	6	2	6	5	2	4	4	2	1
DeHavilland DHC7 .....	39	41	40	42	46	46	43	29	18	8
Lockheed L188 .....	30	34	33	38	34	37	47	51	52	52
Lockheed L382 .....	20	21	21	22	22	11	19	20	20	20
Turboprop-2-engine—total .....	1,280	1,139	1,108	965	847	773	707	48	591	484
Beech BE65 .....	1	4	1	—	—	—	—	—	—	—
Beech BE90 .....	1	4	—	3	2	2	4	2	2	3
Beech BE99 .....	84	52	95	103	85	101	108	102	87	85
Beech BE100 .....	1	—	1	1	2	1	—	—	—	—
Beech BE200 .....	7	5	2	1	6	4	2	2	1	4
Beech BE1900 .....	80	48	60	42	17	—	—	—	—	—
Beech STC18 .....	—	—	—	—	1	—	1	—	—	—
British Aerospace Aircraft Group Jetstream .....	135	113	69	46	10	10	12	12	15	16
Cessna C441 .....	3	2	3	1	3	1	2	—	1	—
Construcciones Aeronauticas C212 .....	18	16	19	24	27	28	16	15	21	—
Convair CV580/640/600 .....	72	77	91	100	107	100	98	251	119	120
DeHavilland DHC6 .....	63	71	69	96	107	112	101	96	107	79
DeHavilland DHC8 .....	44	34	26	10	—	—	—	—	—	—
Dornier DO228 .....	33	18	12	6	—	—	—	—	—	—
Douglas DC3 .....	—	—	—	1	—	—	—	—	—	—
Embraer EM110 .....	77	97	91	79	81	83	83	66	34	4
Embraer EM120 .....	62	36	16	—	—	—	—	—	—	—
Fairchild FH27 .....	7	13	20	28	23	19	10	8	6	6
Fairchild FH227 .....	11	8	7	8	9	9	9	6	8	22
Fokker F27 .....	33	26	36	27	14	7	4	2	4	—
GAF Nomad N22 .....	—	—	—	—	—	—	2	3	9	—
Grumman G73 .....	7	—	—	—	—	—	—	—	—	—
Grumman G159 .....	5	14	15	23	21	16	19	17	16	15

**TABLE 5.2—Continued**  
**AIRCRAFT REPORTED IN OPERATION BY AIR CARRIERS, BY MANUFACTURER AND MODEL 1979 - 1988**

Aircraft Make and Model	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979
Grumman G500.....	1	—	—	—	—	—	—	—	—	—
Hawker-Siddeley HS748.....	—	—	—	—	2	5	5	2	2	1
Israel Aircraft.....	—	—	—	—	—	—	3	2	—	—
AR101B.....	—	—	—	—	—	—	—	—	—	—
Mitsubishi MU2.....	—	1	6	3	1	2	—	—	—	—
Nihon YS11.....	22	36	36	42	30	35	27	27	22	18
Nomad N24.....	—	—	—	—	—	—	—	—	—	1
Nord ND262.....	9	12	15	14	14	9	15	15	22	24
Piper 31T.....	9	6	5	4	8	6	1	1	—	—
Rockwell AC690.....	1	1	4	4	4	1	—	—	—	—
Saab-Fairchild SF340A.....	68	51	34	17	3	—	—	—	—	—
Short SC7.....	—	—	1	1	1	1	2	2	2	—
Short SD3.....	110	110	110	77	78	66	52	39	34	21
S.N.I.A.S. ATR42.....	35	20	8	—	—	—	—	—	—	—
Swearingen SA226.....	90	101	122	113	121	99	105	72	100	66
Swearingen SA227.....	19 <sup>i</sup>	163	135	101	70	55	26	4	—	—
Turboprop-1-engine—total.....	—	3	—	—	—	—	—	—	—	—
Cessna C208.....	—	3	—	—	—	—	—	—	—	—
Piston-4-engine—total.....	36	38	32	38	50	52	58	68	73	58
DeHavilland DH114.....	—	—	—	—	6	11	17	21	27	7
Douglas DC4.....	—	—	1	3	3	3	3	6	5	4
Douglas DC6.....	35	37	30	34	41	38	38	41	41	46
Douglas DC7.....	1	1	1	1	—	—	—	—	—	—
Lockheed L1049.....	—	—	—	—	—	—	—	—	—	1
Piston-3-engine—total.....	3	3	3	4	4	2	—	—	—	1
Britten Norman MK3.....	3	3	3	4	4	2	—	—	—	1
Piston-2-engine—total.....	323	380	385	394	389	502	512	536	517	498
Aero Commander AC500.....	—	—	—	—	—	2	1	1	3	1
Aero Commander AC680.....	—	—	—	—	—	—	1	1	3	2
Beech BE18.....	6	5	9	7	15	20	14	20	13	26
Beech BE36.....	3	—	—	—	—	—	—	—	—	—
Beech BE55.....	—	2	1	—	—	—	2	2	2	3
Beech BE58.....	15	7	4	9	9	6	5	3	3	—
Beech BE65.....	2	2	3	—	—	3	2	4	1	2
Beech BE76.....	—	—	2	3	3	1	—	—	—	—
Beech BE80.....	—	—	—	4	8	—	—	—	2	1
Beech BE95.....	3	—	—	—	—	—	—	1	1	1
Beech BE99.....	—	—	—	—	—	1	—	—	—	—
Beech STC-18.....	—	—	—	—	—	—	—	—	5	—
Britten-Norman BN2A.....	30	29	29	7	27	29	33	35	31	10
Britten-Norman BN28.....	—	—	—	—	—	—	—	—	—	1
Cessna C207T.....	—	—	—	—	—	1	1	—	—	—
Cessna C303T.....	1	1	1	1	—	—	—	5	—	11
Cessna C310.....	—	1	1	1	2	3	4	—	—	—
Cessna C320.....	—	—	—	—	1	—	—	—	—	2
Cessna C337.....	—	—	—	—	—	—	—	—	—	—
Cessna C340.....	—	—	—	—	—	—	—	1	2	2
Cessna C401.....	4	—	—	—	—	—	2	—	—	—
Cessna C402.....	101	143	147	155	112	152	130	131	115	93
Cessna C404.....	4	4	6	5	4	8	22	17	20	17
Cessna C411.....	—	—	—	—	1	—	—	1	—	1
Cessna C414.....	—	—	2	1	1	1	—	3	1	2
Cessna C421.....	1	—	—	—	1	—	1	—	1	—
Convair CV240.....	9	10	9	12	15	10	11	12	4	3
Convair CV340/CV440.....	21	23	17	18	14	22	23	28	23	22
Curtiss-Wright C46.....	—	—	—	3	2	4	5	12	13	12
DeHavilland DHC4.....	—	—	—	—	—	—	—	1	—	2
DeHavilland DHC104.....	—	—	—	—	—	—	—	2	—	1
Dornier DO28.....	—	—	—	—	—	—	—	2	—	1
Douglas DC3.....	20	38	43	39	30	42	50	56	68	90
Fairchild C82.....	—	—	—	—	1	2	2	2	2	2
Grumman G21.....	—	—	—	3	4	3	3	1	1	1
Grumman G44.....	1	1	1	1	1	1	1	1	1	—
Grumman G73.....	4	12	11	3	5	9	9	2	4	—
Grumman G111.....	—	2	3	6	—	2	—	—	—	—
Martin M404.....	2	1	—	—	1	13	11	11	14	20
Partenavia PT68.....	—	2	—	—	—	—	—	—	—	—
Piper PA23.....	9	11	9	3	10	16	18	19	26	20
Piper PA28.....	—	—	—	—	—	7	2	2	—	2
Piper PA30.....	—	—	—	—	—	1	—	—	—	2

**TABLE 5.2—Continued**  
**AIRCRAFT REPORTED IN OPERATION BY AIR CARRIERS, BY MANUFACTURER AND MODEL 1979 - 1988**

Aircraft Make and Model	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979
Piper PA31 .....	71	77	73	100	110	121	139	45	126	122
Piper PA32 .....	2	2	—	—	—	—	—	—	—	—
Piper PA34 .....	12	4	9	12	11	17	16	15	12	10
Piper PA44 .....	1	1	1	1	1	1	1	1	1	1
Piper PA600 .....	1	2	2	—	—	—	—	1	—	1
Piper PA1020T .....	—	—	2	—	—	—	—	—	—	14
Helicopters—total .....	8	13	2	5	12	9	5	4	2	1

NOTE. Beginning in 1987, the number of aircraft is the monthly average of the number of aircraft reported in use for the last three months of the year.  
 Prior to 1987, it was the number of aircraft reported in use during December of the year.

Source Air Carrier Aircraft Utilization and Propulsion Reliability Report, Aviation Standards National Field Office, Federal Aviation Administration.

TABLE 5.3

TOTAL FLIGHT HOURS FOR AIRCRAFT REPORTED IN OPERATION BY AIR CARRIERS, BY MANUFACTURER AND MODEL 1979 - 1988

Aircraft Make and Model	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979
<b>TOTAL.....</b>	<b>12,284,541</b>	<b>11,886,280</b>	<b>11,221,587</b>	<b>10,498,546</b>	<b>9,674,406</b>	<b>8,555,580</b>	<b>6,916,349</b>	<b>8,124,998</b>	<b>8,221,961</b>	<b>7,550,637</b>
Turbojet-4-engine—total	1,093,392	997,951	921,409	817,058	861,389	816,624	728,412	957,880	1,223,377	1,505,863
Boeing B707	43,946	36,206	37,448	15,904	39,243	64,819	83,515	153,877	359,112	539,189
Boeing B720	—	—	559,137	537,954	537,142	504,573	438	317	1,124	18,310
Boeing B747	620,127	575,426	52,431	52,452	14,140	1,623	439,003	531,035	529,314	482,530
British Aerospace Aircraft Groupe BAE146	128,339	125,918	—	—	—	—	—	—	—	—
Concorde	—	—	—	—	—	—	—	—	415	989
Convair CV22	—	—	—	—	—	—	—	543	71	91
Convair CV30	—	—	—	—	—	—	—	657	1,437	2,092
Douglas DC8	300,780	260,401	232,393	210,748	270,728	245,171	204,702	271,330	331,417	462,033
Lockheed L1019	—	—	—	—	—	—	—	—	487	589
Turbojet-3-engine—total	3,705,034	3,865,525	3,960,406	3,843,357	3,786,832	3,278,501	2,971,583	3,531,243	3,693,218	3,519,847
Boeing B727	2,780,240	2,930,107	3,036,233	2,989,848	2,990,821	2,529,074	2,289,310	2,949,274	2,870,352	2,870,352
Douglas DC10	583,558	566,751	580,200	529,073	487,831	423,824	377,811	442,698	441,576	377,434
Lockheed L1011	341,286	368,667	343,973	324,436	308,180	325,603	304,462	318,639	302,368	272,061
Turbojet-2-engine—total	4,951,466	4,575,179	4,057,267	3,568,486	2,872,265	2,494,072	1,751,513	1,817,081	1,715,937	1,641,589
Airbus A300	150,603	156,947	150,898	131,904	101,143	84,674	56,390	61,783	43,703	23,843
Airbus A310	61,663	27,234	17,054	5,613	1,006,238	829,359	562,521	585,997	522,556	470,975
Boeing B737	1,859,347	1,730,473	1,489,831	1,312,425	108,320	50,022	17,090	—	—	—
Boeing B757	321,369	270,729	195,957	192,467	172,705	104,222	1,811	54,323	54,423	58,560
Boeing B767	367,591	274,429	223,227	73,873	59,555	79,011	54,233	1,767	1,767	65,194
British Aircraft BAC111	65,095	84,642	68,908	50	546	657	652	—	—	75,807
Cessna C500/C501	—	54	—	—	2,262	698	—	—	—	680
Dassault MD10	—	—	—	—	4,336	3,218	11,097	18,303	31,559	33,823
Dassault MD20	—	—	—	—	1,931,391	1,809,888	1,655,353	1,438,511	1,028,836	1,051,747
DeHavilland DHC125	—	—	—	—	88,682	97,727	73,494	13,224	23,996	1,023,200
Douglas DC9	—	—	—	—	47	—	334	660	1,308	1,001,148
Fokker F28	—	—	—	—	—	—	102	734	2,392	2,642
Grumman G1159	—	—	—	—	—	—	—	304	—	—
Hamberger Flugzeugbau HFB320	—	—	—	—	—	—	—	—	—	—
Hawker-Siddeley HS125	—	—	—	—	—	—	—	—	—	—
Israel Aircraft 1121	—	—	—	—	—	—	—	—	—	—
Israel Aircraft 1123	—	—	—	—	—	—	—	—	39	318
Israel Aircraft 1124	—	—	—	—	—	—	—	—	208	209
Learjet LR23	—	—	—	—	—	—	—	—	1,227	1,228
Learjet LR24	—	—	—	—	—	—	—	—	436	476
Learjet LR25	44	1,553	2,536	7,559	5,892	3,148	537	537	26	1,007
Learjet LR35	1,355	—	—	—	—	—	—	—	688	697
Learjet LR36	—	—	—	—	—	—	—	—	—	—
Learjet LR55	—	—	—	—	—	—	—	—	253	253
Rockwell International NA265	—	—	—	—	—	—	—	—	—	—
Sud Aviation SE210	—	—	—	—	—	—	—	—	—	—
Sud Aviation SN601	—	—	—	—	—	—	—	—	—	—
Turboprop-4-engine—total	154,747	181,424	169,884	209,197	216,405	206,435	163,552	186,955	158,687	146,244
Canadair CL44	8,427	9,355	8,687	9,147	7,567	6,066	5,303	4,617	2,155	465
DeHavilland DHC7	76,027	91,899	73,524	98,315	106,287	103,528	73,069	64,698	31,472	8,905
Lockheed L188	23,691	33,618	38,019	44,765	45,182	47,981	41,594	60,909	69,217	81,280
Lockheed L382	46,602	46,552	49,654	56,597	56,165	47,877	42,250	56,615	55,843	55,644
Vickers V745	—	—	—	373	1,204	983	912	116	—	—
Vickers V814	—	—	—	—	—	—	424	—	—	—
Turboprop-2-engine—total	2,118,066	1,943,532	1,720,179	1,616,425	1,487,032	1,288,516	935,588	1,127,794	948,180	511,966
Beech BE85	—	596	639	443	360	426	479	—	537	459
Beech BE90	374	303	158	443	183	534	479	209	171,455	45,399
Beech BE99	125,247	141,691	175,543	199,736	199,205	183,802	164,467	137,968	255	—
Beech BE100	769	803	259	806	202	13	—	—	—	—

TABLE 5.3—Continued

TOTAL FLIGHT HOURS FOR AIRCRAFT REPORTED IN OPERATION BY AIR CARRIERS, BY MANUFACTURER AND MODEL 1979 - 1988

Aircraft Make and Model	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979
Beech BE200.....	9,679	3,625	970	3,541	2,522	1,868	1,813	960	886	2,186
Beech BE1900.....	153,473	135,960	107,128	73,211	23,289	632	181	—	—	—
Beech STC18.....	—	—	972	—	648	—	—	236	—	—
British Aerospace Aircraft Group.....	252,253	188,315	108,723	60,492	27,712	18,485	16,222	25,836	25,982	9,141
Jet Stream.....	4,948	3,874	1,364	1,745	1,672	1,265	501	291	107	—
Cessna C441.....	23,610	21,643	19,891	24,886	34,232	33,902	21,870	109,613	637	673
Construcciones Aeronauticas C212.....	63,141	82,371	100,288	113,063	121,399	121,755	104,432	146,867	169,851	169,851
Convair CV580/600/640.....	113,810	122,783	113,958	162,340	176,233	169,980	139,042	170,438	167,282	59,679
DeHavilland DHC8.....	80,964	55,680	36,835	—	—	—	—	—	—	—
Dornier DO228.....	56,580	26,032	16,044	12,306	—	—	—	—	—	—
Douglas DC3.....	531	—	149,585	156,363	199,536	196,128	127,153	94,790	36,468	614
Embraer EM110.....	148,880	177,781	18,838	—	1,478	—	—	—	—	—
Embraer EM120.....	114,296	66,054	31,232	36,420	35,521	24,777	12,438	6,132	3,441	5,177
Fairchild FH227.....	9,821	13,502	13,244	14,891	17,033	19,525	13,341	13,690	17,134	31,926
Fairchild FH227.....	12,169	11,787	61,144	40,521	25,056	13,151	6,047	3,675	5,196	—
Fokker F27.....	50,645	59,910	—	—	—	69	3,628	10,432	5,546	—
GAF Nomad N22.....	—	—	—	—	—	—	—	—	—	—
Gruuman G73.....	10,036	—	—	—	—	—	—	—	—	—
Gruuman G159.....	7,139	15,177	23,328	23,911	20,773	18,339	8,532	14,843	14,273	12,294
Gruuman G500.....	93	—	—	—	—	—	—	—	—	—
Hawker-Siddeley HS748.....	—	—	—	—	—	—	—	—	—	—
Israel Aircraft AR101B.....	88	256	2,980	1,390	314	14	—	—	—	—
Mitsubishi MU2.....	17,645	38,093	46,268	53,707	48,246	43,260	25,610	35,737	37,280	43,798
Nihon Y-11.....	1,907	—	—	—	—	—	—	—	—	51
Nomad N24.....	23,313	24,860	20,504	20,820	22,446	14,630	21,986	44,857	2,564	2,087
Nord ND262.....	11,132	8,232	5,656	4,865	7,003	10,103	2,692	2,234	139	—
Piper 31T.....	4	476	3,057	3,076	2,683	22	—	—	—	—
Rockwell AC690.....	152,177	98,616	56,392	20,627	386	—	—	—	—	—
SAab-Fairchild SF34(A)A.....	—	—	—	101	475	733	520	1,008	489	—
Short SC7.....	183,422	217,177	184,680	178,862	150,714	123,385	79,909	77,708	66,606	27,671
S.N.I.A.S. AIR42.....	60,029	7,943	5,923	—	—	—	—	—	—	—
Swearingen SA226.....	144,032	163,994	187,243	217,667	218,716	194,324	169,688	223,059	177,240	50,446
Swearingen SA227.....	300,940	240,121	225,657	177,622	141,674	87,754	37,269	609	39	54
Turboprop-1-engine—total.....	452	581	—	—	—	—	—	—	—	—
Cessna C208.....	452	581	—	—	—	—	—	—	—	—
Piston-4-engine—total.....	25,083	24,367	24,909	30,854	29,215	33,616	35,782	64,931	70,285	45,007
DeHavilland DH114.....	—	—	—	2,626	7,847	16,835	22,598	42,702	39,110	—
Douglas DC4.....	—	—	—	1,038	1,512	720	1,187	256	3,150	5,934
Douglas DC6.....	24,055	23,405	23,049	26,039	20,648	15,594	12,928	20,945	28,035	31,006
Douglas DC7.....	1,028	962	822	677	—	—	—	—	—	—
Piston-3-engine—total.....	—	—	—	—	—	—	—	—	—	—
Britten-Norman MK3.....	2,477	2,831	1,716	5,470	2,983	1,191	—	—	—	—
2,831	2,477	1,716	5,470	2,983	1,191	—	—	—	—	—
229,150	291,397	360,832	402,377	410,387	427,388	324,519	437,955	411,897	177,868	—
Aero Commander A350.....	13	6	—	—	—	—	—	—	—	—
Aero Commander A3680.....	70	—	—	—	—	—	—	—	—	—
Beech BE18.....	466	578	345	3,015	9,723	10,721	5,928	8,160	7,521	3,222
Beech A36TC.....	1,040	659	—	—	—	—	—	—	—	—
Beech BE55.....	2,498	2,165	1,727	4,637	2,844	674	936	981	961	416
Beech BE58.....	3,940	2,181	5,252	—	—	—	—	—	—	—
Beech BE76.....	—	28	142	586	3,385	1,632	3,435	1,827	1,160	286
Beech BE80.....	—	—	7,031	7,667	306	78	591	123	3,002	455
Beech BE95.....	899	635	9	—	—	—	95	557	105	32
Beech BE99.....	—	—	—	—	—	—	—	—	—	—

TABLE 5.3—Continued

TOTAL FLIGHT HOURS FOR AIRCRAFT REPORTED IN OPERATION BY AIR CARRIERS, BY MANUFACTURER AND MODEL 1979 - 1988

Aircraft Make and Model	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979
Beech STC-18	18,129	19,729	26,166	22,774	28,306	31,204	32,003	39,315	2,769	2,380
Britten-Norman BN-2A	--	--	--	--	--	218	60	--	21,239	1,407
Britten-Norman BN-2B	--	--	--	--	45	244	--	--	100	100
Cessna C207T	6	440	490	372	237	207	1,059	2,573	--	--
Cessna C210T	67	--	--	8	8	20	--	--	--	--
Cessna C303T	--	--	--	--	--	6	--	--	--	1,157
Cessna C310	--	--	--	--	--	--	--	--	--	--
Cessna C320	--	--	--	--	--	--	--	--	--	38
Cessna C337	134	--	--	--	--	--	--	--	244	244
Cessna C340	--	--	--	--	--	--	--	--	165	165
Cessn C401	376	139,843	184,470	191,070	166,914	152,546	103,415	137,504	120,892	23,818
Cessna C402	104,933	2,321	4,022	4,959	4,562	6,730	9,694	14,184	22,977	22,260
Cessna C404	--	--	--	--	102	135	--	6	60	2,877
Cessna C411	11	189	1,279	523	522	2,267	15	645	470	51
Cessna C414	89	--	--	46	26	32	26	14	573	94
Cessna C421	3,694	2,965	3,106	6,284	7,861	6,609	7,399	8,299	3,633	2,067
Convair CV240	6,229	6,384	5,584	4,664	6,910	15,932	10,633	17,163	13,744	16,784
Convair CV340/CV440	--	--	4	41	1,104	1,821	2,340	3,358	4,673	8,768
Curtiss-Wright C46	--	--	--	--	--	--	--	--	91	529
DeHavilland DHC4	--	--	--	--	--	--	--	--	1,268	109
DeHavilland DHC104	--	--	--	--	--	--	--	--	400	16
Dernier DO28	--	--	--	--	--	--	--	--	199	199
Douglas DC3	14,680	21,485	25,971	25,916	23,498	21,836	19,649	25,861	32,749	69,944
Fairchild C82	--	--	6	708	1,252	1,485	2,198	2,127	1,957	1,957
Grumman G10	--	--	--	--	--	1,927	1,453	1,104	--	--
Grumman G21	--	--	--	787	1,861	1,151	920	1,309	3,474	154
Grumman G44	--	--	56	110	1,979	7,669	7,692	5,051	9,014	12,659
Grumman G73	1,887	11,178	10,411	3,476	3,207	4,298	1,817	7,671	9,969	9,996
Grumman G111	--	1,712	10	--	217	5,094	5,732	5,004	7,221	3,662
Martin M404	127	13	1,362	--	--	--	--	--	7,604	12,659
Panavia PT68	4,024	5,100	4,113	6,308	4,691	6,658	4,871	9,969	9,996	1,073
Piper PA23	--	--	--	--	--	42	33	--	--	--
Piper PA28	--	--	--	--	17	460	721	228	392	22
Piper PA30	--	67,554	72,782	102,855	114,330	128,305	95,310	118,451	120,618	25,751
Piper PA31	61,016	698	7,352	7,255	6,660	7,298	5,022	8,853	8,569	1,157
Piper PA32	1,266	981	524	418	39	259	205	238	938	2,5
Piper PA34	354	409	321	--	169	239	108	7,596	1,189	1,189
Piper PA44	106	--	558	1,005	--	--	--	--	--	--
Piper PA600	--	3,847	4,985	5,322	7,998	9,037	5,380	1,139	370	2,223
Helicopters—Total	4,270	--	--	--	--	--	--	--	--	--

NOTE: Air Carrier Aircraft Utilization and Propulsion Reliability Report; Aviation Standards National Field Office, Federal Aviation Administration

TABLE 5.4

TOTAL LARGE AIRCRAFT REPORTED IN OPERATION BY DOMESTIC, FLAG AND SUPPLEMENTAL/SCHEDULED CARGO AIR CARRIERS AND COMMERCIAL OPERATORS BY CARRIER, AND BY ENGINE TYPE: DECEMBER 1988

Name of Carrier	Total All Aircraft	Turbojet				Turboprop			Piston				Rotary Wing
		Total	4-eng	3-eng.	2-eng.	Total	4-eng.	2-eng.	Total	4-eng	3-eng.	2-eng.	
<b>TOTAL.....</b>	<b>4,439</b>	<b>3,913</b>	<b>427</b>	<b>1,542</b>	<b>1,944</b>	<b>438</b>	<b>95</b>	<b>343</b>	<b>88</b>	<b>36</b>	<b>—</b>	<b>52</b>	<b>—</b>
Aerial Transit .....	7	—	—	—	—	2	2	—	5	5	—	—	—
Aero Virgin Islands .....	1	—	—	—	—	—	—	—	1	—	—	—	1
Air Berlin.....	1	1	—	—	1	—	—	—	—	—	—	—	—
Air Specialties c Air America .....	4	4	—	4	—	—	—	—	—	—	—	—	—
Air Train.....	4	4	—	4	—	—	—	—	—	—	—	—	—
Air Transport Intl.....	4	4	4	—	—	—	—	—	—	—	—	—	—
Air Wisconsin dba United Express.....	31	11	11	—	—	20	—	—	20	—	—	—	—
Airborne Express .....	46	34	15	—	19	12	—	—	12	—	—	—	—
Airlift International.....	4	1	1	—	—	3	—	—	3	—	—	—	—
Alaska Airlines.....	46	46	—	22	24	—	—	—	—	—	—	—	—
Aloha Airlines.....	12	12	—	—	12	—	—	—	—	—	—	—	—
American Airlines.....	548	548	9	293	246	—	—	—	—	—	—	—	—
American Trans Air.....	18	18	—	18	—	—	—	—	—	—	—	—	—
American West Airlines .....	71	68	—	—	68	3	—	—	3	—	—	—	—
Amerijet International .....	6	6	—	6	—	—	—	—	—	—	—	—	—
Arrow Air .....	4	4	4	—	—	—	—	—	—	—	—	—	—
Aspen Airways dba United Express.....	14	4	4	—	—	10	—	—	10	—	—	—	—
Atlantic Southeast Airlines .....	11	—	—	—	—	11	5	6	—	—	—	—	—
Bar Harbor Airways.....	7	—	—	—	—	7	—	—	7	—	—	—	—
Basler Flight Service .....	3	—	—	—	—	—	—	—	—	3	—	3	—
Bo S Aire Airlines .....	1	—	—	—	—	—	—	—	—	1	—	1	—
Braniff .....	35	35	—	25	10	—	—	—	—	—	—	—	—
Britt Airways dba Britt Airways & Eastern Express .....	11	—	—	—	—	11	—	—	11	—	—	—	—
Buffalo Airways .....	2	2	2	—	—	—	—	—	—	—	—	—	—
Business Air .....	2	—	—	—	—	—	—	—	—	2	—	2	—
CCair dba Piedmont Commuter .....	11	—	—	—	—	11	—	—	11	—	—	—	—
Challenge Air Itnl.....	2	2	2	—	—	—	—	—	—	—	—	—	—
Chautauqua Airlines dba Allegheny Commuter .....	2	—	—	—	—	2	—	—	2	—	—	—	—
Command Airway .....	11	—	—	—	—	11	—	—	11	—	—	—	—
Condor Aviation .....	1	—	—	—	—	—	—	—	—	1	—	1	—
Conner Airlines .....	4	1	1	—	—	—	—	—	—	3	—	3	—
Congie Kalitta Services .....	12	12	7	4	1	—	—	—	—	—	—	—	—
Continental and/or New York Continental Airlines .....	338	338	8	114	216	—	—	—	—	—	—	—	—
Delta Airlines .....	384	384	5	171	208	—	—	—	—	—	—	—	—
DHL Airways .....	8	8	—	8	—	—	—	—	—	—	—	—	—
Eastern Airlines .....	246	246	—	125	121	—	—	—	—	—	—	—	—
Emerald Air .....	5	5	—	—	5	—	—	—	—	—	—	—	—
ERA Aviation dba ERA Helicopters .....	3	—	—	—	—	3	—	—	3	—	—	—	—
Evergreen Intl. Airlines .....	23	23	6	9	8	—	—	—	—	—	—	—	—
Executive Air Charter dba American Eagle .....	4	—	—	—	—	4	—	—	4	—	—	—	—
Express One Intl.....	9	9	—	7	2	—	—	—	—	—	—	—	—
Fairway Corp.....	1	—	—	—	—	1	—	—	1	—	—	—	—
Federal Express .....	90	90	—	90	—	—	—	—	—	—	—	—	—
Flight Trails dba Air Resorts Airlines .....	10	—	—	—	—	3	—	—	3	—	7	7	—
Florida Airmotive .....	2	—	—	—	—	—	—	—	—	2	—	2	—
Florida Express dba Braniff Express .....	17	17	—	—	17	—	—	—	—	—	—	—	—
Florida West Airlines .....	4	4	—	—	—	—	—	—	—	—	—	—	—
Flying Tiger Lines .....	41	41	28	13	—	—	—	—	—	—	—	—	—
Frontier Flying Service .....	1	—	—	—	—	—	—	—	—	—	—	1	—
General Aviation .....	6	—	—	—	—	—	—	—	—	6	—	6	—
Great American Airways .....	2	2	—	—	2	—	—	—	—	—	—	—	—
Gulf Air .....	7	7	—	—	7	—	—	—	—	—	—	—	—
Hawaiian Airlines .....	31	23	6	5	12	8	—	—	8	—	—	—	—
Henson Aviation .....	26	—	—	—	—	26	—	—	20	—	—	—	—
Horizon Air Industries .....	14	2	—	—	2	12	—	—	12	—	—	—	—
Imperial Aviation .....	2	—	—	—	—	4	—	—	2	—	—	—	—
Interface Group dba Five Star Airlines .....	2	2	—	—	21	—	—	—	—	—	—	—	—

TABLE 5.4—Continued

TOTAL LARGE AIRCRAFT REPORTED IN OPERATION BY DOMESTIC, FLAG AND SUPPLEMENTAL/SCHEDULED CARGO AIR CARRIERS AND COMMERCIAL OPERATORS BY CARRIER, AND BY ENGINE TYPE: DECEMBER 1988

Name of Carrier	Total All Aircraft	Turbojet				Turboprop			Piston				Rotary Wing
		Total	4-eng.	3-eng.	2-eng.	Total	4-eng.	2-eng.	Total	4-eng.	3-eng.	2-eng.	
International Air Services dba Spirit of America Airlines .....	2	2	—	—	1	1	—	—	—	—	—	—	—
Interstate Airlines.....	21	21	21	—	—	—	—	—	—	—	—	—	—
Jet Fleet .....	1	1	—	—	—	1	—	—	—	—	—	—	—
Key Airlines .....	8	8	—	—	8	—	—	—	—	—	—	—	—
Lincoln Airlines .....	3	—	—	—	—	—	3	—	—	3	—	—	—
Markair .....	9	5	—	—	—	5	4	4	—	—	—	—	—
Mesaba Airlines.....	6	—	—	—	—	—	6	—	6	—	—	—	—
Metro Express dba Eastern.....	—	—	—	—	—	—	—	—	—	—	—	—	—
Metro Express .....	8	—	—	—	—	—	8	—	8	—	—	—	—
MGM Grand Air .....	3	3	—	—	3	—	—	—	—	—	—	—	—
Mid Pacific Airlines.....	8	—	—	—	—	—	8	—	8	—	—	—	—
Midway Airlines .....	40	40	—	—	—	40	—	—	—	—	—	—	—
Midwest Express Airlines.....	9	9	—	—	9	—	—	—	—	—	—	—	—
Million Air .....	1	1	—	1	—	—	—	5	—	5	—	—	—
Mountain Air Cargo .....	5	—	—	—	—	—	—	—	—	—	—	—	—
Northern Air Cargo.....	11	—	—	—	—	—	—	—	11	—	11	—	—
Northwest Airlines.....	319	399	40	91	178	10	—	—	—	—	—	—	—
Orion Lift Service.....	47	47	2	37	8	—	—	—	—	—	—	—	—
Pacific Alaska Airlines .....	2	—	—	—	—	2	—	—	2	—	—	—	—
Pacific Interstate Airlines dba Majestic Airlines.....	1	1	—	—	1	—	—	—	—	—	—	—	—
Pan Am Express.....	19	—	—	—	—	19	10	9	—	—	—	—	—
Pan Am Shuttle.....	1	1	—	—	1	—	—	—	—	—	—	—	—
Pan American World Airways.....	136	136	35	65	36	—	—	—	—	—	—	—	—
Pandora Enterprises.....	3	—	—	—	—	—	—	—	3	—	—	3	—
Pennsylvania Commuter Airlines dba Allegheny Commuter .....	5	—	—	—	—	—	5	—	5	—	—	—	—
PHH Air .....	13	13	—	8	5	—	—	—	—	—	—	—	—
Piedmont Aviation.....	195	195	—	34	161	—	—	—	—	—	—	—	—
Pilgrim Aviation & Airlines.....	9	—	—	—	—	9	—	9	—	—	—	—	—
Pocono Airlines dba Allegheny Commuter .....	7	—	—	—	—	7	—	7	—	—	—	—	—
Ports of Call Air .....	9	9	9	—	—	—	—	—	—	—	—	—	—
Presidential Airways.....	9	9	8	—	1	—	—	—	—	—	—	—	—
Reeve Aleutian Airways .....	7	2	—	2	—	—	5	3	2	—	—	—	—
Resort Air dba Trans World Express .....	2	—	—	—	—	2	—	2	—	—	—	—	—
Rich International Airways.....	3	3	3	—	—	—	—	—	—	—	—	—	—
Rocky Mountain Airways dba Continental Express.....	5	—	—	—	—	—	5	5	—	—	—	—	—
Rosenbalm Aviation .....	26	26	26	—	—	—	—	—	—	—	—	—	—
Ross Aviation .....	3	—	—	—	—	—	3	3	—	—	—	—	—
Salair .....	9	—	—	—	—	—	—	—	9	—	—	9	—
Sedalia Marshall Boonville Stage Line .....	16	—	—	—	—	—	16	—	16	—	—	—	—
Sierra Pacific Airlines.....	14	—	—	—	—	—	14	—	14	—	—	—	—
Simmons Airlines dba American Eagle .....	38	—	—	—	—	—	38	—	38	—	—	—	—
Skyfreighters .....	3	—	—	—	—	—	—	—	3	—	—	3	—
Smith, Bill .....	3	—	—	—	—	—	—	—	3	—	—	3	—
Southern Air Transport.....	30	13	13	—	—	17	17	—	—	—	—	—	—
Southern Jersey Airways dba Eastern Express .....	1	—	—	—	—	—	1	1	—	—	—	—	—
Southwest Airlines.....	85	85	—	—	85	—	—	—	—	—	—	—	—
Southwind Airlines .....	1	—	—	—	—	—	—	—	1	—	—	1	—
Stateswest Airlines.....	2	—	—	—	—	—	2	—	2	—	—	2	—
Suburban Airlines .....	6	—	—	—	—	—	6	—	6	—	—	6	—
Sun Country Airlines.....	6	6	—	6	—	—	—	—	—	—	—	—	—
Sunworld International Airways .....	3	3	—	—	3	—	—	—	—	—	—	—	—
Systems Intl. Airways .....	2	—	—	—	—	—	—	—	2	—	—	2	—
T P I Intl Airways .....	7	1	1	—	—	—	6	5	—	—	—	2	—
Tempelhof Airways USA .....	2	—	—	—	—	—	2	—	2	—	—	2	—
Tower Air .....	4	4	4	—	—	—	—	—	—	—	—	—	—
Trans Air Link .....	12	—	—	—	—	—	—	—	12	—	—	12	—
Trans Continental Airlines dba TCA .....	10	3	3	—	—	—	—	—	7	4	—	3	—

TABLE 5.4—Continued

TOTAL LARGE AIRCRAFT REPORTED IN OPERATION BY DOMESTIC, FLAG AND SUPPLEMENTAL/SCHEDULED CARGO AIR CARRIERS AND COMMERCIAL OPERATORS BY CARRIER, AND BY ENGINE TYPE: DECEMBER 1988

Name of Carrier	Total All Aircraft	Turbojet				Turboprop			Piston				Rotary Wing
		Total	4-eng.	3-eng	2-eng.	Total	4-eng.	2-eng.	Total	4-eng.	3-eng	2-eng.	
Trans Florida.....	2	—	—	—	—	—	—	—	2	—	—	—	2
Trans Intl. Airlines.....	7	7	7	—	—	—	—	—	—	—	—	—	—
Trans World Airlines.....	216	216	18	108	90	—	—	—	—	—	—	—	—
Tropical Airways.....	1	1	1	—	—	—	—	—	—	—	—	—	—
Twin Town Leasing.....	2	—	—	—	—	—	—	—	2	—	—	—	2
United Airlines.....	402	402	60	204	138	—	—	—	—	—	—	—	—
United Parcel Service.....	89	89	42	34	13	—	—	—	—	—	—	—	—
Universal Airlines.....	1	—	—	—	—	—	—	—	1	1	—	—	—
USAir.....	206	206	—	10	196	—	—	—	—	—	—	—	—
Viking Intl. Airlines.....	4	—	—	—	—	4	—	4	—	—	—	—	—
Westair Commuter dba United Express.....	11	6	6	—	—	5	—	5	—	—	—	—	—
World Airways.....	6	6	—	6	—	—	—	—	—	—	—	—	—
Worldwide Airlines.....	30	—	—	—	—	30	—	30	—	—	—	—	—
Wrangler Aviation.....	4	—	—	—	—	4	4	—	—	—	—	—	—
Zantop International Airlines.....	36	6	6	—	—	30	21	9	—	—	—	—	—

Source: Air Carrier Aircraft Utilization and Propulsion Reliability Report; Aviation Standards National Field Office, Federal Aviation Administration.  
 Large aircraft—an aircraft with a seating capacity of more than 30 seats or a payload of more than 7,500 pounds.

TABLE 5.5

TOTAL SMALL AIRCRAFT REPORTED IN OPERATION BY COMMUTER AIR CARRIERS AND ON-DEMAND AIR TAXIS BY CARRIER, AND BY ENGINE TYPE: DECEMBER 1988

Name of Carrier	Total All Aircraft	Turbojet				Turboprop			Piston				Rotary Wing	
		Total	4-eng.	3-eng.	2-eng.	Total	4-eng.	2-eng	Total	4-eng.	3-eng.	2-eng.		
TOTAL.....	1,221	2	—	—	—	2	937	—	937	274	—	3	271	8
40 Mile Air .....	1	—	—	—	—	—	—	—	—	1	—	—	1	—
Aero Coach International .....	27	—	—	—	—	—	—	—	—	27	—	—	27	—
Air Cape dba Nantucket Airlines.....	4	—	—	—	—	—	—	—	—	4	—	—	4	—
Air Caribe.....	2	—	—	—	—	—	—	—	—	2	—	—	2	—
Air Kentucky Airlines dba Allegheny Commuter.....	10	—	—	—	—	10	—	10	—	—	—	—	—	—
Air Midwest .....	45	—	—	—	—	45	—	45	—	—	—	—	—	—
Air Molokai .....	9	—	—	—	—	—	—	—	—	9	—	—	9	—
Air Nevada Airlines.....	5	—	—	—	—	—	—	—	—	5	—	—	5	—
Air Sunshine.....	4	—	—	—	—	—	—	—	—	4	—	—	4	—
Air Tour Acquisition dba Panorama Air Tour.....	8	—	—	—	—	—	—	—	—	8	—	—	8	—
Aloña Islandair.....	6	—	—	—	—	6	—	6	—	—	—	—	—	—
Alpha Aviation.....	4	—	—	—	—	—	—	—	—	4	—	—	4	—
Alpine Aviation.....	3	—	—	—	—	—	—	—	—	3	—	—	3	—
Atlantic Southeast Airlines .....	41	—	—	—	—	41	—	41	—	—	—	—	—	—
Atlantis Airlines dba Eastern Atlantis Express.....	5	—	—	—	—	5	—	5	—	—	—	—	—	—
Aviation Associates dba Sunaire .....	13	—	—	—	—	11	—	11	—	2	—	—	2	—
Baker Aviation .....	1	—	—	—	—	—	—	—	—	1	—	—	1	—
Baldwin, Daniel dba Wrangell Air Service.....	1	—	—	—	—	—	—	—	—	1	—	—	1	—
Bar Harbor Airways.....	47	—	—	—	—	47	—	47	—	—	—	—	—	—
Bernidji Aviation Services.....	3	—	—	—	—	1	—	1	—	2	—	—	2	—
Bering Air.....	7	—	—	—	—	—	—	—	—	7	—	—	7	—
Big Island Air.....	3	—	—	—	—	1	—	1	—	2	—	—	2	—
Big Sky Transportation Co.....	14	—	—	—	—	11	—	11	—	3	—	—	3	—
Bo S Aire Airline.....	2	—	—	—	—	—	—	—	—	2	—	—	2	—
Britt Airways dba Britt Airways & Eastern Express.....	29	—	—	—	—	29	—	29	—	—	—	—	—	—
Brockway Air NY dba Piedmont Commuter .....	11	—	—	—	—	11	—	11	—	—	—	—	—	—
Brockway Air VT dba Piedmont Commuter .....	5	—	—	—	—	5	—	5	—	—	—	—	—	—
Business Air.....	7	—	—	—	—	—	—	—	—	7	—	—	7	—
Cape Smythe Air Service .....	8	—	—	—	—	2	—	2	—	6	—	—	6	—
Capitol Air Service.....	5	—	—	—	—	—	—	—	—	5	—	—	5	—
Catskill Airways.....	5	—	—	—	—	5	—	5	—	—	—	—	—	—
CCair dba Piedmont Commuter .....	15	—	—	—	—	15	—	15	—	—	—	—	—	—
Chalks International Airlines .....	4	—	—	—	—	4	—	4	—	—	—	—	—	—
Chaparral Air Service dba American Eagle .....	24	—	—	—	—	24	—	24	—	—	—	—	—	—
Chartair .....	1	—	—	—	—	—	—	—	—	1	—	—	1	—
Chautauqua Airlines dba Allegheny Commuter .....	11	—	—	—	—	11	—	11	—	—	—	—	—	—
Christman Air Systems.....	4	—	—	—	—	4	—	4	—	—	—	—	—	—
Clearwater Flying Service dba Empire Airways.....	3	—	—	—	—	3	—	—	—	3	—	—	—	—
Coastal Air Transport.....	2	—	—	—	—	—	—	—	—	2	—	—	2	—
Coastal Airlines dba National Air .....	5	—	—	—	—	5	—	5	—	—	—	—	—	—
Comair .....	53	—	—	—	—	53	—	53	—	—	—	—	—	—
Command Airways .....	7	—	—	—	—	7	—	7	—	—	—	—	—	—
Conquest Airlines Corp.....	7	—	—	—	—	7	—	7	—	—	—	—	—	—
Crown Air .....	4	—	—	—	—	—	—	—	—	4	—	—	4	—
Crown Airways dba Allegheny Commuter .....	8	—	—	—	—	8	—	8	—	—	—	—	—	—
DHL Airways .....	12	1	—	—	—	10	—	10	—	—	—	—	—	—
Direct Air .....	1	—	—	—	—	—	—	—	—	1	—	—	1	—
East Hampton Aire .....	18	—	—	—	—	3	—	3	—	15	—	—	15	—
ERA Aviation dba ERA Helicopters .....	9	—	—	—	—	9	—	9	—	—	—	—	—	—
Executive Air Charter dba American Eagle .....	9	—	—	—	—	9	—	9	—	—	—	—	—	—

**TABLE 5.5—Continued**  
**TOTAL SMALL AIRCRAFT REPORTED IN OPERATION BY COMMUTER AIR CARRIERS AND ON-DEMAND AIR TAXIS BY CARRIER, AND BY ENGINE TYPE: DECEMBER 1988**

Name of Carrier	Total All Aircraft	Turbojet				Turboprop			Piston				Rotary Wing
		Total	4-eng.	3-eng.	2-eng.	Total	4-eng.	2-eng.	Total	4-eng.	3-eng.	2-eng.	
Express Airlines dba Northwest Air Link .....	36	—	—	—	—	36	—	36	—	—	—	—	—
Fairways .....	1	—	—	—	—	1	—	1	—	—	—	—	—
Flamenco Airways .....	6	—	—	—	—	—	—	—	6	—	1	5	—
Flight Lines dba Southern Express .....	16	—	—	—	—	9	—	9	7	—	—	7	—
Florida Airmotive .....	6	—	—	—	—	—	—	—	6	—	—	6	—
Friendship Air Alaska .....	4	—	—	—	—	—	—	—	4	—	—	4	—
Frontier Flying Service .....	6	—	—	—	—	1	—	1	5	—	—	5	—
Golden Pacific Airlines .....	11	—	—	—	—	2	—	2	9	—	—	9	—
Grand Canyon .....	2	—	—	—	—	2	—	2	—	—	—	—	—
Great Lakes Aviation .....	6	—	—	—	—	6	—	6	—	—	—	—	—
Harbor Airlines .....	3	—	—	—	—	—	—	—	3	—	—	3	—
Helicopter Air Service dba Trump Air .....	3	—	—	—	—	—	—	—	—	—	—	3	—
Henson Aviation .....	6	—	—	—	—	6	—	6	—	—	—	—	—
Hermens Air .....	5	—	—	—	—	3	—	3	2	—	—	2	—
Horizon Air .....	27	—	—	—	—	27	—	27	—	—	—	—	—
Imperial Aviation .....	1	—	—	—	—	—	—	—	1	—	—	1	—
Intercity Airlines dba Havasu Airlines .....	2	—	—	—	—	3	—	3	—	2	—	2	—
Iowa Airways .....	3	—	—	—	—	—	—	—	—	—	—	—	—
Jet Express .....	1	—	—	—	—	1	—	1	—	—	—	—	—
Jetstream Intl. Airlines .....	31	—	—	—	—	31	—	31	—	—	3	—	3
JIB dba Action Air Charters .....	3	—	—	—	—	—	—	—	2	—	—	2	—
Kenosha Aero dba Alliance Airlines .....	2	—	—	—	—	—	—	—	1	—	—	1	—
Ketchikan Air Service .....	1	—	—	—	—	—	—	—	—	—	—	—	—
L A B Flying Service .....	6	—	—	—	—	—	—	—	6	—	—	6	—
Lake Union Air Service .....	1	—	—	—	—	1	—	1	—	—	—	—	—
Larry's Flying Service .....	7	—	—	—	—	—	—	—	7	—	—	7	—
Mall Airways .....	8	—	—	—	—	8	—	8	—	—	—	—	—
Merlin Express .....	10	—	—	—	—	10	—	10	—	—	—	—	—
Mesa Airlines .....	14	—	—	—	—	14	—	14	—	—	—	—	—
Mesaba Airlines .....	10	—	—	—	—	10	—	10	—	—	—	—	—
Metro Express I .....	5	—	—	—	—	5	—	5	—	—	—	—	—
Metro Express press .....	19	—	—	—	—	19	—	19	—	—	—	—	—
Metroflight dba Ameri. ....	16	—	—	—	—	16	—	16	—	—	—	—	—
Midcontinent Airlines .....	4	—	—	—	—	3	—	3	1	—	—	1	—
Midstate Airlines .....	2	—	—	—	—	2	—	2	—	—	—	—	—
Midway Airline 1987 .....	19	—	—	—	—	19	—	19	—	—	—	—	—
Midwest Aviation Division of Southwest Aviation .....	3	—	—	—	—	—	—	—	3	—	—	3	—
Montauk Caribbean Airways dba Long Island Airlines .....	9	1	—	—	—	1	2	—	2	6	—	6	—
MST Aviation dba MST Aviation of Wisconsin .....	2	—	—	—	—	—	—	—	2	—	—	2	—
N E Airlines .....	3	—	—	—	—	—	—	—	3	—	—	3	—
Nashville Eagle dba American Eagle .....	38	—	—	—	—	38	—	38	—	—	—	—	—
New York Helicopter Corp. ....	4	—	—	—	—	—	—	—	—	—	—	4	—
Nicholson Air Service dba Cumberland Airlines .....	4	—	—	—	—	—	—	—	4	—	—	4	—
NPA dba United Express .....	16	—	—	—	—	16	—	16	—	—	—	—	—
Peninsula Airways .....	6	—	—	—	—	6	—	6	—	—	—	—	—
Pennsylvania Aviation dba Wings Airways .....	6	—	—	—	—	1	—	1	5	—	2	3	—
Pennsylvania Commuter Airlines dba Allegheny Commuter .....	11	—	—	—	—	11	—	11	—	—	—	—	—
Pilgram Aviation and Airlines .....	22	—	—	—	—	22	—	22	—	—	—	—	—
Pocono Airlines dba Allegheny Commuter .....	1	—	—	—	—	1	—	1	—	—	—	—	—
Precision Aviation .....	18	—	—	—	—	18	—	18	—	—	—	—	—
Presidential Airways .....	8	—	—	—	—	8	—	8	—	—	—	—	—
Prime Air .....	3	—	—	—	—	—	—	—	3	—	—	3	—
Prophetor Construction Co. ....	2	—	—	—	—	—	—	—	2	—	—	2	—
Resort Air dba Trans World Express .....	13	—	—	—	—	13	—	13	—	—	—	—	—

**TABLE 5.5—Continued**  
**TOTAL SMALL AIRCRAFT REPORTED IN OPERATION BY COMMUTER AIR CARRIERS AND ON-DEMAND AIR TAXIS BY CARRIER, AND BY ENGINE TYPE: DECEMBER 1988**

Name of Carrier	Total All Aircraft	Turbojet				Turboprop			Piston				Rotary Wing
		Total	4-eng.	3-eng.	2-eng.	Total	4-eng.	2-eng.	Total	4-eng.	3-eng.	2-eng.	
Resort Commuter.....	3	—	—	—	—	3	—	3	—	—	—	—	—
Rocky Mountain Airways dba Continental Express.....	10	—	—	—	—	10	—	10	—	—	—	—	—
Ross Aviation.....	1	—	—	—	—	1	—	1	—	—	—	—	—
Royale Airlines.....	6	—	—	—	—	6	—	6	—	—	—	—	—
Ryan Air Service.....	3	—	—	—	—	—	—	—	3	—	—	3	—
S F O Helicopter Airlines.....	1	—	—	—	—	—	—	—	1	—	—	1	—
Sallee's Aviation.....	2	—	—	—	—	—	—	—	2	—	—	2	—
San Juan Airlines.....	13	—	—	—	—	11	—	11	2	—	—	2	—
Scenic Airlines.....	13	—	—	—	—	13	—	13	—	—	—	—	—
Skagway Air Service.....	1	—	—	—	—	—	—	—	1	—	—	1	—
Skywest Airlines.....	45	—	—	—	—	45	—	45	—	—	—	—	—
South Central Air.....	8	—	—	—	—	5	—	5	3	—	—	3	—
South Pacific Island Airways.....	2	—	—	—	—	2	—	2	—	—	—	—	—
Southern Jersey Airways dba Eastern Express.....	4	—	—	—	—	4	—	4	—	—	—	—	—
Stateswest Airlines.....	2	—	—	—	—	2	—	2	—	—	—	—	—
Suburban Airlines.....	5	—	—	—	—	5	—	5	—	—	—	—	—
Templehof Airways USA.....	1	—	—	—	—	1	—	1	—	—	—	—	—
Temco Helicopters.....	1	—	—	—	—	—	—	—	1	—	—	1	—
Texas National Airlines.....	2	—	—	—	—	2	—	2	—	—	—	—	—
Valley Flying Service.....	4	—	—	—	—	—	—	—	4	—	—	4	—
Vieques Air Link.....	10	—	—	—	—	—	—	—	10	—	—	10	—
Virgin Air dba Air St Thomas.....	10	—	—	—	—	—	—	—	10	—	—	10	—
Virgin Island Seaplane.....	—	—	—	—	—	—	—	—	—	—	—	—	—
Shuttle.....	6	—	—	—	—	3	—	3	3	—	—	3	—
Walkers Aviation.....	2	—	—	—	—	1	—	1	1	—	—	1	—
Westair Commuter dba United Express.....	45	—	—	—	—	45	—	45	—	—	—	—	—
Wilburs.....	9	—	—	—	—	—	—	—	9	—	—	9	—
Worldwide Airlines.....	4	—	—	—	—	4	—	4	—	—	—	—	—
WRA.....	1	—	—	—	—	1	—	1	—	—	—	—	—
Wright Air Service.....	3	—	—	—	—	—	—	—	3	—	—	3	—

Source: Air Carrier Aircraft Utilization and Propulsion Reliability Report; Aviation Standards National Field Office, Federal Aviation Administration.  
Small aircraft—an aircraft with a seating capacity of 30 seats or less or a payload of 7,500 pounds or less.

## VI. U.S. CERTIFIED AIR CARRIERS—OPERATING DATA

The traffic and financial data contained in this chapter include data for all U.S. Certified Air Carriers—those holding a certificate issued under Section 401 of the Federal Aviation Act of 1958; and the commuter air carriers—those holding a certificate under Section 298C of the Federal Aviation Act of 1958.

The data are classified in two broad operational categories: "domestic" and "international". Beginning January 1, 1981, "domestic" encompasses operations within and between the 50 states of the United States, the District of Columbia, the Commonwealth of Puerto Rico and the Virgin Islands. It also encompasses Canadian transborder operations and for certain carriers, Mexican transborder operations. All other categories are considered "international". For periods prior to January 1, 1981, the data are classified in this same manner, except statistics for Puerto Rico and Virgin Islands operations are included in the international category rather than the domestic.

The certificated carriers are also grouped into "large" and "small" according to the size aircraft that the carrier operates. A "large" carrier is one that operates aircraft designed to have a maximum passenger seating capacity of 60 seats or more or a maximum payload capacity of 18,000 pounds or more, or conducts international operations. A "small" certificated carrier operates aircraft of less than 60 seats or a payload capacity of less than 18,000. The commuter carriers are grouped with the small certificated carriers.

The large certificated air carriers, beginning in 1981, were grouped according to their total operating revenue as listed below:

Carrier Groups	Carriers with Annual Operating Revenue of:
Major .....	\$1,000,000,000+
Nationals.....	\$75,000,000 - \$1,000,000,000
Large Regionals .....	\$10,000,000 - \$74,999,999
Medium Regionals .....	0 - \$9,999,999

The tables in this chapter are divided into two groups: 6.1-6.15 cover the large carriers and 6.16-6.18 cover the small commuter and large certificated medium regional carriers. Please note that some large certificated medium regional carriers are included in both groups of tables. The information for the large air carriers was obtained from the following sources published by the Research & Special Programs Administration of the Department of Transportation:

*Air Carrier Traffic Statistics* compiled from RSPA Form 41 Schedules T-1(a), T-1(b) and T-1(c).

*Air Carrier Financial Statistics* compiled from RSPA Form 41 Schedules B-1 and P-1.

The information for the small certificated, commuter and large certificated medium regional carriers was obtained from:

*Air Carrier Industry Scheduled Service Traffic Statistics: Medium Regional Section:* compiled from RSPA Form 298C Schedules A-1 and T-1.

**TABLE 6.1**  
**LARGE CERTIFIED AIR CARRIERS 1987 AND 1988**

**MAJORS**

American Continental Delta Eastern Federal Express Flying Tiger Northwest	Pan American Piedmont Trans World United US Air Western
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**NATIONALS**

Air California Air Wisconsin Alaska Aloha American Trans Air American West Braniiff Hawaiian	Jet America Midway Pacific Southwest Southwest TranStar United Parcel Service World Zantop
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**LARGE REGIONALS**

Air America Arrow Aspen Britt Emerald Evergreen Five Star Florida Express Gulf Air Transport Horizon Air International Air Service InterState Key Markair	Mid Pacific Midwest Express Northern Air Orion Presidential Reeve Rich Rosenbalm Skyworld Southern Air Sun Country Sunworld Tower West Air
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**MEDIUM REGIONALS**

Aerial Aeron Air Transport Int'l Amerijet Buffalo Challenge Air Cargo Challenge Air Int'l Conner Express One Florida West	Galaxy Great American Independent Air Jet Fleet MGM Grand Millon Pacific Interstate Sun Coast Trans Air Link Trans International
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**TABLE 6.2**  
**TRAFFIC DATA, ALL SERVICES (Scheduled and Nonscheduled) OF THE LARGE CERTIFIED AIR CARRIERS 1987 AND 1988**

Traffic Category	Total System		Domestic Operations		International Operations	
	1988 P	1987 R	1988 P	1987 R	1988 R	1987 R
Revenue Passenger Miles Flown (000) .....	437,492,537	417,830,055	334,235,345	329,214,527	103,257,192	88,615,528
Available Seat Miles (000) .....	696,105,185	670,870,993	544,666,876	533,169,193	151,438,309	137,701,800
Revenue Passenger Enplanements (000) .....	463,124	455,516	423,817	420,832	39,307	34,684
Revenue Ton Miles Flown (000) *	58,338,680	54,917,632	41,562,502	40,509,782	16,776,178	14,407,850
Passenger.....	43,749,265	41,786,983	33,423,663	32,926,775	10,325,602	8,860,208
Freight.....	12,752,280	11,374,744	6,771,626	6,269,789	5,980,654	5,104,955
U.S. Mail.....	1,809,959	1,721,263	1,366,521	1,312,572	443,438	408,691
Foreign Mail.....	27,015	34,570	534	567	26,481	34,003
Revenue Aircraft Miles Flown (000) .....	4,350,162	4,182,327	3,736,271	3,652,542	613,891	529,786

\* Details may not add to total due to rounding.

P Preliminary

R Revised

Source: "Air Carrier Traffic Statistics" - RSPA

TABLE 6.3

REVENUE AIRCRAFT DEPARTURES, MILES AND HOURS FLOWN, AND AVERAGE SPEED IN DOMESTIC ALL SERVICES OF THE LARGE CERTIFICATED AIR CARRIERS 1979 - 1986

Year	Revenue Aircraft Departures	Revenue Aircraft Miles Flown (000)	Revenue Aircraft Hours Flown	Average Airborne Speed (Miles Per Hour)
1979.....	5,232,381	2,471,401	6,090,313	406
1980.....	5,222,379	2,523,375	6,247,795	404
1981.....	5,099,380	2,442,294	6,080,401	402
1982.....	4,860,482	2,442,292	5,962,431	410
1983.....	4,920,125	2,552,942	6,174,957	413
1984.....	5,358,454	2,875,402	6,970,886	412
1985.....	5,760,232	3,046,440	7,457,030	409
1986.....	6,336,150	3,421,492	8,223,615	416
1987 <sup>R</sup> .....	6,511,609	3,652,542	8,823,269	414
1988 <sup>P</sup> .....	6,604,309	3,736,271	9,130,113	409

<sup>R</sup> Revised.

<sup>P</sup> Preliminary.

Source: "Air Carrier Traffic Statistics" - RSPA

TABLE 6.4

REVENUE AIRCRAFT DEPARTURES, MILES AND HOURS FLOWN, AND AVERAGE SPEED IN INTERNATIONAL ALL SERVICES OF THE LARGE CERTIFICATED AIR CARRIERS 1979 - 1988

Year	Revenue Aircraft Departures	Revenue Aircraft Miles Flown (000)	Revenue Aircraft Hours Flown	Average Airborne Speed (Miles Per Hour)
1979.....	253,821	387,737	788,598	492
1980.....	256,415	400,791	819,518	489
1981.....	229,661	356,270	729,827	488
1982.....	233,726	362,183	739,820	490
1983.....	243,029	362,994	740,896	490
1984.....	241,087	388,794	792,267	491
1985.....	244,888	415,355	846,197	491
1986.....	271,735	451,338	923,641	489
1987 <sup>R</sup> .....	311,411	529,786	1,082,189	490
1988 <sup>P</sup> .....	353,494	613,891	1,257,819	488

<sup>R</sup> Revised.

<sup>P</sup> Preliminary.

Source: "Air Carrier Traffic Statistics" - RSPA

TABLE 6.5

TOTAL TON-MILES AVAILABLE IN ALL SERVICES OF THE LARGE CERTIFICATED AIR CARRIERS 1979 - 1988 (Thousands of Ton-Miles)

Year	Large Certificated Air Carriers		
	Total System <sup>1</sup>	Domestic Operations	International Operations
1979.....	62,545,477	47,339,854	13,205,593
1980.....	66,167,396	49,396,481	16,763,237
1981.....	64,247,767	48,669,968	15,574,092
1982.....	65,769,930	49,757,601	16,012,329
1983.....	68,778,295	52,724,653	15,920,720
1984.....	76,298,288	58,942,974	17,355,314
1985.....	80,565,182	61,337,807	19,227,375
1986.....	90,243,958	69,771,737	20,472,221
1987 <sup>R</sup> .....	99,152,795	75,741,397	23,411,398
1988 <sup>P</sup> .....	105,270,795	78,203,055	27,067,741

<sup>1</sup> Categories may not add to total due to rounding.

<sup>P</sup> Preliminary.

<sup>R</sup> Revised.

Source: "Air Carrier Traffic Statistics" - RSPA

TABLE 6.6

REVENUE TON-MILES FLOWN IN ALL SERVICES BY LARGE CERTIFICATED AIR CARRIERS 1979 - 1988 (Thousands of Tons)

Year	Large Certificated Air Carriers		
	Total <sup>1</sup>	Domestic Operations	International Operations
1979.....	34,550,392	25,676,130	8,874,792
1980.....	34,655,519	24,964,909	9,689,068
1981.....	33,923,495	24,801,224	9,122,094
1982.....	35,050,938	25,838,708	9,212,230
1983.....	38,011,227	28,271,465	9,624,208
1984.....	41,277,948	30,561,436	10,716,512
1985.....	44,154,779	32,939,216	11,215,563
1986.....	48,883,854	37,148,059	11,735,795
1987 <sup>R</sup> .....	54,917,632	40,509,782	14,407,830
1988 <sup>P</sup> .....	58,338,680	41,562,502	16,776,178

<sup>1</sup> Categories may not add to total due to rounding.

<sup>P</sup> Preliminary.

<sup>R</sup> Revised.

Source: "Air Carrier Traffic Statistics" - RSPA

**TABLE 6.7**  
**PASSENGER OPERATIONS IN SCHEDULED DOMESTIC OPERATIONS OF THE LARGE CERTIFICATED AIR CARRIERS**  
**1979 - 1988**

Year	Revenue Passenger Enplanements (000)	Revenue Passenger Miles (000)	Available Seat-Miles (000)	Revenue Passenger Load Factor <sup>1</sup> (Percent)	Average On-Line Passenger Trip Length (Miles)	Average Passenger Revenue Per Passenger Miles (Cents)
1979.....	292,700	208,890,884	332,796,130	62.8	714	8.93
1980.....	272,829	200,829,303	346,028,272	58.0	736	11.49
1981.....	265,304	198,714,755	346,171,952	57.4	749	12.74
1982.....	274,342	210,149,315	359,527,716	58.5	766	12.21
1983.....	296,721	226,908,925	379,150,158	59.8	765	12.13
1984.....	321,047	243,692,254	422,506,609	57.7	759	12.79
1985.....	357,109	270,584,011	445,825,864	60.7	758	12.32
1986.....	393,864	302,089,903	497,990,815	60.7	767	11.18
1987 <sup>R</sup> .....	416,831	324,637,336	526,958,361	61.6	779	11.42
1988 <sup>P</sup> .....	419,210	329,309,489	536,662,590	61.4	786	12.31

<sup>1</sup> Percent revenue passenger-miles of available seat-miles.

<sup>P</sup> Preliminary.

<sup>R</sup> Revised.

Source: "Air Carrier Traffic Statistics" - RSPA

**TABLE 6.8**  
**PASSENGER OPERATIONS IN SCHEDULED INTERNATIONAL OPERATIONS OF THE LARGE CERTIFICATED AIR CARRIERS 1979 - 1988**

Year	Revenue Passenger Enplanements (000)	Revenue Passenger Miles (000)	Available Seat-Miles (000)	Revenue Passenger Load Factor (Percent) <sup>1</sup>	Average On-Line Passenger Trip Length (Miles)	Average Passenger Revenue Per Passenger Miles (Cents)
1979.....	24,163	53,132,491	83,330,299	63.8	2,199	7.66
1980.....	24,074	54,362,811	86,506,831	62.8	2,258	8.78
1981.....	20,672	50,173,046	78,725,278	63.7	2,427	9.46
1982.....	19,760	49,494,555	80,591,490	61.4	2,505	9.57
1983.....	21,917	54,920,223	85,387,821	64.3	2,506	10.21
1984.....	23,636	61,423,601	92,816,730	66.2	2,599	9.38
1985.....	24,913	65,819,010	101,962,568	64.6	2,642	9.80
1986.....	25,082	64,455,952	109,445,032	58.9	2,570	10.16
1987 <sup>R</sup> .....	30,847	79,834,148	121,762,577	65.6	2,588	9.82
1988 <sup>P</sup> .....	35,404	93,992,070	140,139,737	67.1	2,655	10.37

<sup>1</sup> Percent revenue passenger-miles of available seat-miles.

<sup>P</sup> Preliminary.

<sup>R</sup> Revised.

Source: "Air Carrier Traffic Statistics" - RSPA

**TABLE 6.9**  
**REVENUE AIRCRAFT-MILES FLOWN IN ALL SERVICES OF LARGE  
 CERTIFICATED AIR CARRIERS 1979 - 1988**

Year	Thousands of Miles		
	Total <sup>1</sup>	Domestic Operations	International Operations
1979.....	2,859,138	2,471,401	387,737
1980.....	2,924,234	2,523,375	400,791
1981.....	2,703,219	2,442,294	356,270
1982.....	2,804,475	2,442,292	362,183
1983.....	2,922,583	2,552,942	362,994
1984.....	3,264,196	2,875,402	388,794
1985.....	3,461,795	3,046,440	415,355
1986.....	3,872,830	3,421,492	451,338
1987 <sup>R</sup> .....	4,182,327	3,652,542	529,786
1988 <sup>P</sup> .....	4,350,162	3,736,271	613,891

<sup>1</sup> Details may not add to total due to rounding.

<sup>P</sup> Preliminary.

<sup>R</sup> Revised

Source: "Air Carrier Traffic Statistics" - RSPA

TABLE 6.10

OPERATING REVENUE OF DOMESTIC OPERATIONS, ALL SERVICES LARGE CERTIFICATED AIR CARRIERS MAJOR, NATIONAL, AND LARGE REGIONAL GROUPS 1979 - 1988  
(Thousands of Dollars)

Year	Total Operating Revenues <sup>1</sup>		Passenger		U.S. Mail (Including Subsidy)		Express and Freight		Excess Baggage		Other	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1979	21,652,405	100.0	18,719,830	86.5	415,737	1.9	1,455,828	6.7	27,681	0.1	1,033,313	4.8
1980	26,403,576	100.0	23,081,487	87.4	52,572	2.0	1,552,836	5.9	32,168	0.1	1,207,184	4.6
1981	28,787,566	100.0	25,504,233	88.6	58,746	2.1	1,659,182	5.8	36,101	0.1	997,305	3.4
1982	28,777,699	100.0	25,439,640	88.6	57,822	2.0	1,505,035	5.2	42,045	0.1	1,169,148	4.1
1983	31,014,393	100.0	27,519,079	88.7	537,234	1.7	1,601,895	5.2	51,967	0.2	1,304,221	4.2
1984	35,333,945	100.0	31,436,951	88.8	559,138	1.6	1,715,979	4.8	70,032	0.2	1,611,842	4.6
1985	37,628,540	100.0	33,343,005	88.6	740,384	1.9	1,580,914	4.2	78,113	0.2	1,886,123	5.0
1986	41,000,506	100.0	33,813,923	82.5	682,643	1.7	4,278,008	10.9	85,438	0.2	2,140,496	5.2
1987 R	45,657,800	100.0	37,492,065	82.2	706,178	1.5	4,951,524	10.9	66,736	0.1	2,440,877	5.3
1988 P	50,051,633	100.0	41,021,417	82.0	696,647	1.4	5,753,922	11.5	71,929	0.1	2,507,719	5.0

<sup>1</sup> Details may not add to total due to rounding

P Preliminary

R Revised

NOTE: 1976-1981 include financial statistics for medium regionals; data for 1982 and after shown separately on Table 6.14  
Source: "Air Carrier Financial Statistics", Table 1 - RSPA

TABLE 6.11

OPERATING EXPENSES OF DOMESTIC OPERATIONS, ALL SERVICES LARGE CERTIFICATED AIR CARRIERS MAJOR, NATIONAL, AND LARGE REGIONAL GROUPS 1979 - 1988  
(Thousands of Dollars)

Year	Total Operating Expenses:		Aircraft Operating Expenses				Ground and Indirect Expenses				Net Operating Income or Loss Amount	
	Amount	Percent	Flight Operations		Maintenance		Depreciation and Amortization		Amount	Percent	Amount	Percent
			Amount	Percent	Amount	Percent	Amount	Percent				
1979	21,522,972	100.0	7,998,440	37.2	2,457,497	11.4	1,372,944	6.4	9,693,961	45.0	129,433	-5,662
1980	26,409,238	100.0	11,029,423	41.8	2,757,663	10.4	1,560,312	5.9	11,061,841	41.9	-263,564	
1981	29,051,130	100.0	12,036,704	41.4	2,821,933	9.7	1,723,406	5.9	12,469,387	42.9	-750,416	
1982	29,478,115	100.0	11,529,364	39.1	2,709,440	9.2	1,876,106	6.4	13,363,206	45.3	-171,268	
1983	31,185,661	100.0	11,370,479	36.5	2,877,991	9.2	2,107,283	6.8	14,329,909	47.6	1,582,203	
1984	33,811,742	100.0	12,160,526	36.0	3,175,865	9.4	2,223,275	6.6	16,252,075	48.1	1,017,796	
1985	36,610,744	100.0	12,684,018	34.7	3,604,447	9.8	2,318,066	6.3	18,004,213	49.2	1,066,470	
1986	39,334,036	100.0	11,368,346	28.5	4,475,473	11.2	2,652,497	6.6	21,437,719	53.7	1,732,650	
1987 R	43,925,149	100.0	12,508,716	28.5	4,950,558	11.3	2,854,806	6.5	23,611,068	53.7	2,489,169	
1988 P	47,562,464	100.0	13,100,351	27.5	5,619,685	11.8	2,973,615	6.3	25,868,813	54.4		

<sup>1</sup> Details may not add to total due to rounding

P Preliminary

R Revised

NOTE: 1976-1981 include financial statistics for medium regionals; data for 1982 and after shown separately on Table 6.14.  
Source: "Air Carrier Financial Statistics", Table 1 - RSPA

TABLE 6.12

OPERATING REVENUE OF INTERNATIONAL OPERATIONS, ALL SERVICES LARGE CERTIFICATED AIR CARRIERS MAJOR, NATIONAL, AND LARGE REGIONAL GROUPS 1979 - 1988  
(Thousands of Dollars)

Year	Total Operating Revenues <sup>1</sup>		Passenger		U.S. Mail (Including Subsidy)		Express and Freight		Excess Baggage		Other	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1979	5,574,590	100.0	4,071,862	73.0	119,948	2.2	755,492	13.6	22,743	0.4	604,546	10.8
1980	6,553,033	100.0	4,777,026	73.0	163,204	2.5	875,682	13.4	24,749	0.4	702,372	10.7
1981	6,390,140	100.0	4,916,469	77.0	165,467	2.6	984,474	15.4	24,654	0.4	299,075	4.7
1982	6,434,904	100.0	4,959,347	77.1	176,930	2.8	999,620	15.4	25,358	0.4	283,448	4.4
1983	7,163,275	100.0	5,004,902	78.2	152,455	2.1	999,405	14.0	23,012	0.3	383,502	5.4
1984	7,974,276	100.0	6,074,406	76.2	157,703	2.0	1,189,259	14.8	27,447	0.3	545,832	6.8
1985	8,302,279	100.0	6,451,324	77.7	160,543	1.9	1,130,050	13.6	27,832	0.3	531,528	6.4
1986	8,621,149	100.0	6,550,550	76.0	153,627	1.8	1,451,988	16.8	28,254	0.3	437,231	5.1
1987 <sup>R</sup>	10,924,837	100.0	8,374,295	76.7	180,052	1.6	1,732,832	16.3	32,688	0.3	554,971	5.1
1988 <sup>P</sup>	13,331,945	100.0	10,331,313	77.5	183,774	1.4	2,106,147	15.8	39,124	0.3	671,586	5.0

<sup>1</sup> Details may not add to total due to rounding.<sup>R</sup> Preliminary.<sup>P</sup> Revised.

NOTE: 1976-1981 include financial statistics for "medium regionals; data for 1982 and after shown separately on Table 6.14.  
Source: "Air Carrier Financial Statistics", Table 1 - RSPA

TABLE 6.13

OPERATING EXPENSES OF INTERNATIONAL OPERATIONS, ALL SERVICES LARGE CERTIFICATED AIR CARRIERS MAJOR, NATIONAL, AND LARGE REGIONAL GROUPS 1979 - 1988  
(Thousands of Dollars)

Year	Total Operating Expenses <sup>1</sup>		Aircraft Operating Expenses				Ground and Indirect Expense				Net Operating Income or Loss Amount	
	Amount	Percent	Flying Operations		Maintenance		Depreciation and Amortization		Amount	Percent		
			Amount	Percent	Amount	Percent	Amount	Percent				
1979	5,505,332	100.0	1,960,372	35.6	571,215	10.4	351,700	6.4	2,662,043	47.6	69,238	
1980	6,765,623	100.0	2,775,331	41.0	615,982	9.1	385,396	5.7	2,988,914	44.2	-222,590	
1981	6,574,441	100.0	2,756,877	42.0	539,605	8.2	382,367	5.9	2,895,591	44.0	-184,300	
1982	6,451,807	100.0	2,596,134	40.2	511,795	7.9	396,159	6.1	2,947,719	45.7	-17,103	
1983	6,692,776	100.0	2,490,076	37.2	547,741	8.2	388,708	5.8	3,266,252	48.8	470,499	
1984	7,484,679	100.0	2,628,664	35.1	676,950	9.0	445,857	6.0	3,733,208	49.9	490,028	
1985	7,983,705	100.0	2,738,439	34.4	768,018	9.6	481,560	6.0	3,995,687	50.0	318,574	
1986	8,458,084	100.0	2,401,911	28.4	900,784	10.7	517,524	6.1	4,637,866	54.8	163,066	
1987 <sup>R</sup>	10,226,388	100.0	2,836,095	27.7	1,095,635	10.7	533,079	5.2	5,761,719	56.4	698,450	
1988 <sup>P</sup>	12,361,152	100.0	3,229,711	26.1	1,307,595	10.6	615,920	5.0	7,207,925	58.3	970,794	

<sup>1</sup> Details may not add to total due to rounding. <sup>R</sup> Revised.

NOTE: 1976-1981 include financial statistics for "medium regionals; data for 1982 and after shown separately on Table 6.14.

TABLE 6.14

OPERATING REVENUE, SYSTEM, ALL SERVICES LARGE CERTIFICATED AIR CARRIERS MEDIUM REGIONAL GROUP 1982 - 1988 (Thousands of Dollars)

Year	Total Operating Revenues		Scheduled Passenger		Scheduled Other		Non Scheduled Service		Subsidy		Other Transport Related	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1982	448,159	100.0	154,261	34.5	39,690	8.9	207,558	46.3	6,030	1.3	40,239	9.0
1983	408,082	100.0	19,126	17.7	9,897	9.2	73,469	68.0	2,132	2.0	3,457	3.2
1984	159,837	100.0	61,966	38.8	7,063	4.4	83,249	52.1	1,561	1.0	5,988	3.7
1985	150,754	100.0	38,045	25.2	19,467	12.9	89,863	59.6	0	0.0	3,379	2.2
1986	81,971	100.0	10,576	12.9	43	0.0	61,729	75.4	0	0.0	9,624	11.7
1987 P	114,593	100.0	6,845	6.0	4,521	3.9	55,406	74.5	0	0.0	17,821	15.6
1988 P	129,010	100.0	21,547	16.7	3,343	2.6	101,876	79.0	0	0.0	2,243	1.7

\* Preliminary.

\*\* Revised.

Source: "Air Carrier Financial Statistics", Table 3 - RSPA

NOTE: Wide fluctuations in total revenues and expenses are caused by fluctuations in the number of medium regional carriers. Some have been upgraded to large regional carriers and some have gone out of business. For list of medium regional carriers see "Air Carrier Financial Statistics" for year in question.

TABLE 6.15

OPERATING EXPENSES, SYSTEM, ALL SERVICES LARGE CERTIFICATED AIR CARRIERS MEDIUM REGIONAL GROUP 1982 - 1988 (Thousands of Dollars)

Year	Total Operating Expenses		Flying Operations		Maintenance		General and Administrative		Depreciation and Amortization		Transport Related	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1982	467,998	100.0	242,231	51.8	52,816	11.2	122,861	26.3	19,791	4.2	30,299	6.5
1983	111,713	100.0	68,130	61.0	17,693	15.8	18,327	16.4	7,353	6.6	210	0.2
1984	159,680	100.0	89,995	56.4	21,572	13.5	37,866	23.7	9,885	6.2	361	0.2
1985	151,527	100.0	79,920	52.8	22,585	14.9	42,703	28.2	5,179	3.4	1,140	0.7
1986	87,359	100.0	45,435	52.0	14,515	16.6	17,436	20.0	2,616	3.0	7,356	8.4
1987 P	120,019	100.0	56,061	46.7	25,533	21.3	27,351	22.8	6,269	5.2	4,803	4.0
1988 P	138,538	100.0	6,451	47.9	26,422	19.1	36,731	26.5	7,835	5.7	1,099	0.8

Source: "Air Carrier Financial Statistics", Table 3 - RSPA

NOTE: Wide fluctuations in total revenues and expenses are caused by fluctuations in the number of medium regional carriers. Some have been upgraded to large regional carriers and some have gone out of business. For list of medium regional carriers see "Air Carrier Financial Statistics" for year in question.

**TABLE 6.16**  
**SMALL CERTIFICATED AND COMMUTER AIR CARRIERS 1987 AND 1988**

40-Mile Air	Desert Sun Airlines	Omniflight Helicopters
Action Airlines	Direct Air	Panorama Air Tours
Aerial Transit Company *	East Hampton Aire	Peninsula Airways
Aero Coach	Empire Airways	Pennsylvania Airlines
Aero Virgin Islands	Enterprise Airlines	Pocono Airlines
Aeron Int'l	ERA Aviation	Polar International
Air Cape	Exec Express	Precision Valley Aviation
Air Caribe Int'l	Exec Express II	Presidential Express
Air Kentucky Air Lines	Executive Air Charter	Prime Air
Air L. A.	Express Airlines I	Pro Air Services
Air Link Airways	Fischer Bros. Aviation	Propheter Aviation
Air Midwest	Flamenco Airways	Provincetown Boston
Air Molakai	Florida West Airlines *	QWest Commuter
Air Nevada Airlines	Freedom Air	Ransome Airlines
Air New Orleans	Friendship Air Alaska	Resort Air
Air Sunshine	Frontier Flying Service	Resort Commuter
Air-Lift Associates	Galena Air Service	Rocky Mountain Airways
Airways Int'l	GCS Air Service	Ross Aviation
Alaska Island Air	Golden Pacific Airlines	Royale Airlines
Aleutian Air	GP Express	Ryan Air Services
Alliance Airlines	Grand Canyon	Samoa Aviation
Aloha Island Air	Grand Canyon Helicopters	San Juan Airlines
Alpha Air	Great Lakes Aviation	Scenic Airlines
Alpine Air	Green Hills Aviation	Seagull Air Service
Altus Airlines	Haines Airways	SFO Helicopter Airlines
Ana	Harbor Air Service	Simmons Airlines
Armstrong Air Service	Harbor Airlines	Skagway Air Service
Atlantic Southeast Airlines	Havasu Airlines	Sky West Aviation
Atlantis Airlines	Helitrans	South Pacific Island Airway
Audi Air	Henson Aviation	Southcentral Air
Avair	Hermens Air	Southern Airways
Baker Aviation	Holiday Airlines	Southern Jersey Airways
Bar Harbor Airways	Hub Express	Sportsman Flying Service
Barrow Air	Iliamna Air Taxi	Springdale Air
Bas Aviation	Iowa Airways	Stateswest Airlines
Bellair	Jet Express	Suburban Airlines
Bemidji Airlines	Jetstream Int'l Airlines	Sunaire
Bering Air	Kenmore Air Harbor	Suncoast Airlines *
Big Island Air	Ketchikan Air Service	Tanana Air Service
Big Sky Airlines	King Flying Service	Taquan Air Service
Brockway Air	L.A.B. Flying Service	Tatonduk Flying Service
Business Express Airlines	LA Helicopter	Temsco Airlines
Cape Smythe Air Service	Laredo Air	Tennessee Airways
Capitol Airline	Larry's Flying Service	Texas National Airlines
Caribbean Express	Long Island Airlines	Trans-Colorado Airlines
Catskill Airways	Mall Airways	Tri Air Freight
CCair	Manu'a Air Transport	Tropical Helicopter Airways
Centennial Airlines	Maui Airlines	Trump Air
Chalks Int'l Airlines	Mesa Airlines	Valley Airlines
Challenge Air Cargo *	Mesaba Aviation	Vieques Air Link, Inc.
Challenge Air Int'l *	Metro Express	Village Aviation
Channel Flying	Metro Express II	Virgin Air
Chaparral Airlines	Metroflight Airlines	Virgin Islands Seaplane
Chartair	MGM Grand Air *	Walker's International
Chautauqua Airlines	Michigan Airways	Wheeler Airlines
Chester County Aviation	Midcontinent Airlines	Wilbur's
Chitina Air Service	Midstate Airlines	Wings Airways
Christman Air System	Midwest Aviation	Wings of Alaska
Coastal Air Transport	MST Aviation	Wings West
Comair	Nashville Eagle	WRA
Command Airways	New England Airlines	Wrangell Air Service
Crown Air	New York Helicopter	Wright Air Service
Crown Airways	NPA	Yutana Airlines
Cumberland Airlines	Olson Air Service	Yute Air Alaska

\* Large certificated medium regional air carrier.

TABLE 6.17

SMALL CERTIFICATED, COMMUTER AND LARGE CERTIFICATED MEDIUM REGIONAL AIR CARRIERS TRAFFIC DATA SCHEDULED SERVICES ONLY 1981-1988

Category	1981	1982	1983	1984	1985	1986	1987 <sup>n</sup>	1988 <sup>p</sup>
Revenue Passenger Miles (000) .....	2,160,350	2,905,243	2,228,453	4,601,837	3,031,817	3,352,187	3,986,637	4,415,391
Revenue Enplanement <sup>r</sup> (000) .....	15,642	17,444	15,941	20,230	18,853	20,849	24,839	27,404
Passenger Ton Miles (000) .....	210,026	286,608	222,189	460,135	302,783	335,264	396,887	440,177
Cargo Ton Miles (000) .....	32,812	30,911	7,752	18,291	67,400	49,927	54,659	82,500
Aircraft Revenue Miles (000) .....	254,682	264,176	242,120	304,217	323,945	347,181	395,998	424,121
Aircraft Revenue Hours .....	1,558,025	1,504,406	1,464,879	1,759,848	1,832,623	1,940,095	2,193,230	2,306,717
Aircraft Departures .....	2,341,469	2,353,081	2,287,504	2,706,142	2,755,516	2,866,653	3,132,899	3,187,284

<sup>n</sup> Revised<sup>r</sup> Preliminary

Source: "Air Carrier Industry Scheduled Traffic Statistics", RSPA

TABLE 6.18

SMALL CERTIFICATED, COMMUTER AND LARGE CERTIFICATED MEDIUM REGIONAL AIR CARRIERS TRAFFIC AVERAGES SCHEDULED SERVICES ONLY 1981-1988

Category	1981	1982	1983	1984	1985	1986	1987 <sup>r</sup>	1988 <sup>p</sup>
Passengers Per Aircraft Mile .....	8.5	11.0	9.2	15.1	9.4	9.7	10.1	10.4
Available Seats Per Aircraft Mile .....	18.2	23.7	20.7	30.0	21.3	21.5	21.8	22.2
Revenue Tons Per Aircraft Mile .....	1.0	1.2	1.0	1.6	1.1	1.1	1.1	1.2
Available Tons Per Aircraft Mile .....	2.1	2.8	2.3	3.3	2.7	2.5	2.7	2.6
Flight Stage Length (Miles) .....	108.8	112.3	105.8	112.3	117.6	128.7	126.4	133.1

<sup>n</sup> Revised<sup>r</sup> Preliminary

Source: "Air Carrier Industry Scheduled Traffic Statistics", RSPA

## VII. U.S. CIVIL AIRMEN

Statistics pertaining to airmen, both pilot and nonpilot, were obtained from the official airmen certification records maintained by the Airmen Certification and Medical Certification Branches of the Mike Monroney Aeronautical Center at Oklahoma City, Oklahoma.

Active pilots are those pilots who hold a pilot certificate and a valid medical certificate—one that was issued within the last 25 months. Glider and Lighter-than-air pilots may have, but are not required to have, a medical examination. The inventory data for these categories include only those with a valid medical certificate.

For those nonpilot certificates for which a medical certificate is not required (mechanics, parachute riggers, ground instructors, and dispatchers), the numbers shown include all who have been issued that airman certificate.

**TABLE 7.1**  
ESTIMATED ACTIVE PILOT CERTIFICATES HELD: DECEMBER 31, 1979 - 1988

Category	1979	1980 <sup>1</sup>	1981	1982	1983	1984	1985	1986	1987	1988
Pilot—Total.....	814,667	827,071	764,182	733,255	718,004	722,376	709,540	709,118	699,653	694,016
Student.....	210,180	199,833	179,912	156,361	147,197	150,081	146,652	150,273	146,016	136,913
Private.....	343,276	357,479	328,562	322,094	318,643	320,086	311,086	305,736	300,949	299,786
Commercial.....	182,097	183,442	168,580	165,093	159,495	155,929	151,632	147,798	143,645	143,030
Airline Transport.....	63,652	69,569	70,311	73,471	75,938	79,192	82,740	87,186	91,287	96,968
Helicopter (only).....	5,218	6,030	6,453	7,034	7,237	7,532	8,123	8,581	8,702	8,608
Glider (only) <sup>2</sup> .....	6,796	7,039	7,388	7,842	8,157	8,390	8,168	8,411	7,901	7,600
Lighter-than-air <sup>2</sup> .....	3,448	3,679	2,976	1,360	1,337	1,166	1,139	1,133	1,153	1,111
Nonpilot—Total <sup>2</sup> .....	351,981	368,356	382,840	399,661	413,199	426,802	395,139	410,079	427,962	448,710
Mechanic <sup>3</sup> .....	237,611	250,157	262,705	277,436	288,335	298,028	274,100	284,241	297,178	312,419
Parachute Rigger <sup>3</sup> .....	9,381	9,547	9,716	9,893	10,074	10,194	9,395	9,535	9,659	9,770
Ground Instructor <sup>3</sup> .....	59,680	61,550	63,246	65,004	66,385	67,463	58,214	59,443	60,861	62,582
Dispatcher <sup>3</sup> .....	6,446	6,799	7,094	7,580	8,223	8,980	8,511	9,025	9,491	10,020
Flight Navigator.....	1,994	1,936	1,785	1,695	1,636	1,603	1,542	1,512	1,445	1,400
Flight Engineer.....	36,869	38,367	38,294	38,053	38,546	40,534	43,377	46,323	49,328	52,519
Flight Instructor Certificates <sup>4</sup> .....	54,398	60,440	57,523	62,492	62,201	61,173	58,940	57,355	60,316	61,798
Instrument Ratings <sup>5</sup> .....	247,096	260,461	252,535	255,073	254,271	256,584	258,559	262,388	266,122	273,804

<sup>1</sup> For 1980 only, a valid medical certificate was defined as one that was issued within the last 27 months.

<sup>2</sup> Glider and lighter-than-air pilots are not required to have a medical examination, however, the totals above represent pilots who received a medical examination within the last 25 months.

<sup>3</sup> Numbers represent all certificates on record. No medical examination required.

<sup>4</sup> Not included in total.

<sup>5</sup> Special ratings shown on pilot certificates, do not indicate additional certificates.

<sup>6</sup> Revised.

**TABLE 7.2**  
ESTIMATED ACTIVE WOMEN PILOT CERTIFICATES HELD: DECEMBER 31, 1979 - 1988

Category of Certificates Held	1979	1980 <sup>1</sup>	1981	1982	1983	1984	1985	1986	1987	1988
Pilot—Total.....	51,733	52,902	47,721	45,305	43,648	44,339	43,493	43,082	42,578	42,299
Student.....	26,714	26,006	22,591	19,958	18,696	19,435	19,058	18,899	18,367	17,529
Private.....	20,275	21,554	19,602	19,388	18,801	18,616	17,974	17,532	17,349	17,544
Commercial.....	3,618	3,993	4,101	4,257	4,281	4,232	4,185	4,176	4,208	4,410
Airline Transport.....	361	480	584	749	884	1,032	1,184	1,334	1,538	1,745
Helicopter (only).....	27	55	87	113	144	167	196	232	247	259
Glider (only) <sup>2</sup> .....	461	496	540	574	599	631	653	667	627	590
Lighter-than-air <sup>2</sup> .....	277	318	216	266	243	226	233	242	242	222
Nonpilot—Total <sup>2</sup> .....	4,350	4,779	5,201	5,697	6,151	6,591	6,017	6,502	7,101	7,842
Mechanic <sup>3</sup> .....	695	890	1,051	1,298	1,493	1,649	1,775	1,964	2,237	2,565
Parachute Rigger <sup>3</sup> .....	553	562	580	593	605	614	412	414	428	441
Ground Instructor <sup>3</sup> .....	2,852	3,015	3,213	3,391	3,554	3,680	2,980	3,087	3,232	3,391
Dispatcher <sup>3</sup> .....	105	141	167	199	249	310	394	460	524	622
Flight Navigator.....	145	171	189	215	248	336	455	577	680	822
Flight Engineer.....	0	0	1	1	2	2	1	0	0	1
Flight Instructor Certificates <sup>4</sup> .....	1,699	2,079	2,165	2,532	2,685	2,736	2,731	2,687	2,909	3,018

<sup>1</sup> For 1980 only, a valid medical certificate was defined as one that was issued within the last 27 months.

<sup>2</sup> Glider and lighter-than-air pilots are not required to have a medical examination, however, the totals above represent pilots who received a medical examination within the last 25 months.

<sup>3</sup> Numbers represent all certificates on record. No medical examination required.

<sup>4</sup> Not included in total.

<sup>5</sup> Revised.

TABLE 7.3

ESTIMATED ACTIVE PILOT AND NONPILOT CERTIFICATES HELD, BY CLASS OF CERTIFICATES AND BY FAA REGION: DECEMBER 31, 1988

Class of Certificate	Total <sup>1</sup>	Alaskan	Central	Eastern	Great Lakes	New England	Northwest Mountain	Southern	Southwest	Western-Pacific	Outside U.S. <sup>2</sup>
Total—All Pilots .....	694,016	10,191	34,932	90,964	115,271	34,433	64,901	117,731	82,964	121,715	20,914
Student Pilots—Total .....	136,913	1,718	5,949	20,536	23,381	8,282	12,328	22,928	15,005	23,135	3,651
Private Pilots—Total .....	299,786	4,858	17,937	37,864	56,764	14,811	28,529	46,663	34,948	53,696	3,716
Private Airplane (only) .....	289,318	4,714	17,501	36,246	55,397	14,321	27,474	44,820	33,805	51,630	3,410
Private Airplane, Private Glider .....	4,059	38	158	703	622	195	386	618	391	889	59
Private Airplane, Commercial Glider .....	799	4	22	164	109	60	98	85	70	179	8
Private Airplane, Private Gyroplane .....	26	0	0	3	1	0	2	6	6	6	0
Private Airplane, Private Helicopter .....	1,392	14	64	169	163	84	152	215	171	290	70
Private Airplane, Private Glider, Private Helicopter .....	60	0	1	15	10	5	3	7	5	11	3
Private Airplane, Commercial Helicopter .....	4,081	86	190	554	451	144	406	907	495	683	165
Private Airplane, Private Glider, Commercial Helicopter .....	32	1	1	5	0	0	0	0	0	0	0
Private Airplane, Commercial Glider, Commercial Helicopter .....	17	1	0	5	2	0	0	1	3	2	0
Private Airplane, Commercial Gyroplane, Commercial Helicopter .....	2	0	0	0	0	0	0	0	0	0	0
Commercial Pilots—Total .....	143,030	2,491	7,136	17,854	21,086	5,819	13,145	25,807	18,549	24,798	6,345
Commercial Airplane (only) .....	121,819	2,151	6,249	14,899	18,787	4,992	10,991	21,289	15,751	20,697	6,013
Commercial Airplane, Private Glider, Commercial Airplane, Commercial Glider .....	2,063	22	95	323	268	78	229	339	234	450	25
Commercial Airplane, Commercial Glider, Commercial Helicopter .....	3,703	24	138	558	515	213	430	574	421	794	36
Commercial Airplane, Commercial Gyroplane, Commercial Helicopter .....	2	0	0	0	1	0	0	0	0	0	0
Commercial Airplane, Private Helicopter .....	302	6	12	44	57	12	25	45	40	53	8
Commercial Airplane, Commercial Glider, Private Helicopter .....	24	0	0	6	5	1	1	2	3	5	1
Commercial Airplane, Commercial Helicopter .....	14,346	275	614	1,904	1,365	486	1,386	3,425	2,014	2,625	252
Commercial Airplane, Private Glider, Commercial Helicopter .....	150	1	6	24	25	6	11	28	16	30	3
Commercial Airplane, Commercial Glider, Commercial Helicopter .....	562	10	21	90	53	30	63	96	62	132	5
Commercial Airplane, Commercial Gyroplane, Commercial Helicopter .....	22	1	1	2	4	0	4	4	1	4	1
Commercial Airplane, Commercial Glider, Commercial Gyroplane .....	24	1	0	2	4	1	4	4	5	3	0
Commercial Airplane, Commercial Gyroplane, Commercial Helicopter .....	13	0	0	2	2	0	1	1	2	4	1
Airline Transport Pilots—Total .....	969,688	1011	3382	11669	12169	458:	9332	19,550	12,552	16,233	6628
Airline Transport Airplane (only) .....	952,822	972	3343	11371	12026	4467	9198	19,018	12,237	16,024	5576
Airline Transport Airplane, Airline Transport Helicopter .....	1686	39	39	298	143	115	134	332	265	269	52
Rotorcraft (only) Pilots—Total .....	8608	93	331	1333	729	441	611	2189	1175	1282	424
Private Gyroplane .....	15	0	1	1	6	1	1	2	0	2	1
Private Helicopter .....	1143	4	23	171	102	123	83	115	96	300	126
Commercial Helicopter .....	6997	79	303	1094	594	305	494	2006	966	930	226
Glider .....	7	0	0	3	0	0	0	0	1	1	0

TABLE 7.3—Continued  
ESTIMATED ACTIVE PILOT AND NONPILOT CERTIFICATES HELD, BY CLASS OF CERTIFICATES AND BY FAA REGION: DECEMBER 31, 1988

Class of Certificate	Total <sup>1</sup>	Alaskan	Central	Eastern	Great Lakes	New England	Northwest Mountain	Southern	Southwest	Western-Pacific	Outside U.S. <sup>2</sup>
Commercial Helicopter, Commercial Glider	4	0	1	1	1	0	0	0	0	1	0
Commercial Helicopter, Commercial Gyroplane	2	0	0	0	0	0	0	1	1	0	0
Airline Transport Helicopter	440	10	3	63	26	12	33	64	111	47	71
Glider (only)—Total	7600	13	126	1559	952	449	828	653	571	2306	143
Private Glider	6528	10	112	1308	814	369	685	572	481	2054	123
Commercial Glider	1072	3	14	251	138	80	143	81	90	252	20
Lighter-Than-Air—Total	1111	7	71	149	190	49	128	141	164	205	7
Nonpilots—Total	448710	4524	22221	63872	58437	19268	37996	77950	58717	85163	26562
Mechanic <sup>3</sup>	312419	3151	17239	45826	40032	13206	24356	51822	41834	60930	14023
Parachute Rigger <sup>3</sup>	9770	154	426	1649	1227	350	1308	1869	991	1632	164
Ground Instructor <sup>4</sup>	62382	712	3114	8651	9887	2763	5660	10725	8266	11247	1557
Dispatcher <sup>3</sup>	10020	158	152	1966	963	259	497	1870	747	1465	1543
Flight Navigator	1400	5	11	221	38	157	147	234	78	4C4	105
Flight Engineer	52519	344	1279	5559	6290	2533	6028	11430	6801	9485	2170
Flight Instructor Certificates—Total <sup>4</sup>	51798	765	3181	8805	10551	2914	5979	10628	7770	1022	953
Instrument Ratings <sup>5</sup>	273804	3492	12269	35565	40639	12321	24535	52137	34598	46913	11335

<sup>1</sup> Includes Outside U.S. total.

<sup>2</sup> Outside U.S. includes airmen certificated by the FAA who live outside the 50 states or foreign countries.

<sup>3</sup> Total ratings issued to date. These ratings retain their validity without periodic medical examinations.

<sup>4</sup> Not included in total.

<sup>5</sup> Special ratings shown on pilot certificates, do not indicate additional ratings.

**TABLE 7.4**  
**ESTIMATED ACTIVE PILOTS AND FLIGHT INSTRUCTORS BY FAA REGION AND STATE: DECEMBER 31, 1988**

FAA Region and State	Total Pilots	Students	Private	Commercial	Airline Transport	Miscell- aneous <sup>a</sup>	Flight Instructor <sup>b</sup>
<b>Total</b> .....	<b>694,016</b>	<b>136,913</b>	<b>299,786</b>	<b>143,030</b>	<b>96,968</b>	<b>17,319</b>	<b>61,798</b>
<b>United States—Total</b> .....	<b>673,102</b>	<b>133,262</b>	<b>296,070</b>	<b>136,685</b>	<b>90,340</b>	<b>16,745</b>	<b>60,845</b>
<b>Alaskan Region—Total</b> .....	<b>10,191</b>	<b>1,718</b>	<b>4,853</b>	<b>2,491</b>	<b>1,011</b>	<b>113</b>	<b>765</b>
<b>Central Region—Total</b> .....	<b>34,932</b>	<b>5,949</b>	<b>17,937</b>	<b>7,136</b>	<b>3,382</b>	<b>528</b>	<b>3,181</b>
Iowa.....	7,444	1,278	4,242	1,393	441	90	648
Kansas.....	1,416	1,393	4,960	2,002	930	131	856
Missouri.....	12,838	2,415	6,028	2,500	1,652	243	1,267
Nebraska.....	5,234	863	2,707	1,241	359	64	410
<b>Eastern Region—Total</b> .....	<b>90,964</b>	<b>20,536</b>	<b>37,864</b>	<b>17,854</b>	<b>11,669</b>	<b>3,041</b>	<b>8,805</b>
Delaware.....	1,664	345	688	335	259	37	196
District of Columbia.....	633	138	281	122	55	37	59
Maryland.....	9,990	2,107	4,483	1,936	1,181	283	916
New Jersey.....	14,426	3,202	5,887	2,573	2,273	491	1,432
New York.....	25,228	6,227	10,703	4,847	2,376	1,075	2,301
Pennsylvania.....	21,199	4,980	9,126	3,698	2,795	600	2,240
Virginia.....	15,338	2,954	5,480	3,899	2,549	456	1,439
West Virginia.....	2,486	583	1,216	444	181	62	222
<b>Great Lakes Region—Total</b> .....	<b>115,271</b>	<b>23,381</b>	<b>56,764</b>	<b>21,086</b>	<b>12,169</b>	<b>1,871</b>	<b>10,551</b>
Illinois.....	27,000	5,835	12,237	4,774	3,687	467	2,648
Indiana.....	12,463	2,634	6,269	2,335	1,055	170	1,169
Michigan.....	20,025	4,117	10,241	3,439	1,799	429	1,785
Minnesota.....	16,194	2,915	7,919	2,933	2,260	167	1,378
North Dakota.....	3,234	626	1,616	876	94	22	262
Ohio.....	22,194	4,526	11,022	4,110	2,076	460	2,134
South Dakota.....	2,532	459	1,272	605	170	26	215
Wisconsin.....	11,629	2,269	6,188	2,014	1,028	130	960
<b>New England Region—Total</b> .....	<b>34,433</b>	<b>8,282</b>	<b>14,811</b>	<b>5,819</b>	<b>4,582</b>	<b>939</b>	<b>2,914</b>
Connecticut.....	9,326	2,085	3,644	1,553	1,792	252	792
Maine.....	3,890	856	1,832	796	353	53	299
Massachusetts.....	12,966	3,497	5,862	2,062	1,150	395	1,094
New Hampshire.....	4,766	1,026	1,864	806	930	140	437
Rhode Island.....	1,608	346	783	274	159	46	120
Vermont.....	1,877	472	826	328	198	53	172
<b>Northwest Mountain Region—Total</b> .....	<b>64,901</b>	<b>12,328</b>	<b>28,529</b>	<b>13,145</b>	<b>9,332</b>	<b>1,567</b>	<b>5,979</b>
Colorado.....	17,695	3,828	6,560	3,464	3,283	560	1,823
Idaho.....	4,127	637	2,090	939	394	67	376
Montana.....	3,962	673	2,021	920	308	40	367
Oregon.....	9,830	1,743	5,222	1,979	678	208	825
Utah.....	5,469	1,072	2,457	997	814	129	473
Washington.....	21,772	3,990	9,083	4,453	3,712	534	1,947
Wyoming.....	2,046	385	1,096	393	143	29	168

**TABLE 7.4—Continued**  
**ESTIMATED ACTIVE PILOTS AND FLIGHT INSTRUCTORS BY FAA REGION AND STATE: DECEMBER 31, 1988**

FAA Region and State	Total Pilots	Students	Private	Commercial	Airline Transpor: <sup>1</sup>	Miscell- aneous <sup>2</sup>	Flight Instructor <sup>3</sup>
Southern Region—Total .....	117,731	22,928	46,663	25,807	19,310	2,983	10,628
Alabama.....	9,332	1,713	3,693	2,356	761	867	937
Florida.....	45,663	8,417	18,094	10,555	7,791	804	4,194
Georgia.....	18,333	3,400	6,524	3,722	4,312	310	1,473
Kentucky.....	5,796	1,216	2,594	1,012	813	161	533
Mississippi .....	4,645	963	1,856	1,367	360	99	379
North Carolina.....	15,025	3,289	6,204	2,982	2,194	356	1,229
South Carolina.....	6,947	1,575	2,864	1,625	748	135	646
Tennessee .....	11,990	2,355	4,834	2,188	2,362	251	1,237
Southwest Region—Total .....	82,964	15,005	34,948	18,549	12,552	1,910	7,770
Arkansas.....	6,143	1,226	2,844	1,536	461	76	522
Louisiana.....	8,267	1,490	3,355	2,220	906	296	730
New Mexico.....	5,056	1,067	2,154	1,160	475	200	465
Oklahoma.....	11,353	2,148	5,639	2,452	935	179	946
Texas.....	52,145	9,074	20,956	11,181	9,775	1,159	5,107
Western-Pacific Region—Total .....	121,715	23,135	53,696	24,798	16,293	3,793	10,252
Arizona.....	15,478	3,015	6,603	3,261	2,073	526	1,464
California.....	97,245	18,382	44,141	19,533	12,286	2,903	7,952
Hawaii .....	3,598	786	865	867	865	215	293
Nevada .....	5,394	952	2,087	1,137	1,069	149	543
Outside U. S. —Total <sup>4</sup> .....	20,914	3,651	3,716	6,345	6,628	574	953
Other U. S. Areas:.....	1,862	554	610	344	319	35	0
American Samoa.....	1 <sup>3</sup>	1	5	3	3	1	0
Canal Zone.....	1	1	0	0	0	0	0
Guam .....	121	18	30	22	49	2	0
Puerto Rico.....	1,417	467	468	247	205	30	0
Virgin Island.....	307	66	107	70	62	2	0
Wake Island .....	3	1	0	2	0	0	0

<sup>1</sup> Includes Outside U.S.

<sup>2</sup> Includes helicopter, glider, and lighter-than-air.

<sup>3</sup> Not included in total.

<sup>4</sup> Outside U.S. includes Other U.S. Areas outside of the 50 states and foreign countries.

TABLE 7.5

ESTIMATED ACTIVE WOMEN PILOTS AND FLIGHT INSTRUCTORS BY FAA REGION AND STATE. DECEMBER 31, 1988

FAA Region and State	Total Pilots	Students	Private	Commercial	Airline Transport	Miscell- aneous <sup>2</sup>	Flight Instructor <sup>3</sup>
Total <sup>1</sup> .....	42,299	17,529	17,544	4,410	1,745	1,071	3,018
United States—Total.....	41,680	17,247	17,370	4,305	1,711	1,047	2,978
Alaskan Region—Total.....	818	324	388	81	20	5	43
Central Region—Total.....	1,889	736	901	167	55	30	117
Iowa.....	357	134	183	28	7	5	20
Kansas.....	536	185	284	46	15	6	32
Missouri.....	732	322	307	63	28	12	49
Nebraska.....	264	95	127	30	5	7	16
Eastern Region—Total .....	5,829	2,569	2,206	626	216	212	444
Delaware.....	96	45	31	9	8	3	8
District of Columbia .....	68	30	29	4	4	1	4
Maryland.....	700	274	299	76	33	18	45
New Jersey.....	864	371	314	111	33	35	72
New York .....	1,596	709	589	166	45	87	116
Pennsylvania .....	1,436	651	542	153	49	41	112
Virginia.....	937	421	353	96	43	24	81
West Virginia.....	132	68	49	11	1	3	6
Great Lakes Region—Total .....	6,947	2,855	2,967	746	261	118	537
Illinois.....	1,704	705	705	190	82	22	136
Indiana.....	694	275	302	78	26	13	57
Michigan.....	1,220	513	508	126	37	36	87
Minnesota.....	940	352	426	99	51	12	83
North Dakota.....	169	55	78	33	2	1	17
Ohio .....	1,428	627	578	149	45	29	107
South Dakota.....	124	59	52	7	4	2	4
Wisconsin .....	668	269	318	64	14	3	46
New England Region—Total .....	2,377	1,079	911	217	105	65	156
Connecticut.....	592	256	219	55	41	21	40
Maine.....	213	93	97	14	8	1	15
Massachusetts.....	976	485	349	93	28	21	58
New Hampshire.....	334	142	124	36	18	14	27
Rhode Island.....	119	38	68	8	3	2	6
Vermont .....	143	65	54	11	7	6	10
Northwest Mountain Region—Total.....	4,361	1,735	1,887	442	182	115	308
Colorado.....	1,284	566	451	141	72	54	121
Idaho.....	250	86	130	24	6	4	17
Montana.....	210	80	105	21	4	0	13
Oregon.....	698	251	356	60	16	15	39
Utah .....	261	107	115	19	12	8	13
Washington .....	1,544	600	674	165	71	24	101
Wyoming.....	114	45	56	12	1	0	4

TABLE 7.5—Continued

ESTIMATED ACTIVE WOMEN PILOTS AND FLIGHT INSTRUCTORS BY FAA REGION AND STATE· DECEMBER 31, 1988

FAA Region and State	Total Pilots	Students	Private	Commercial	Airline Transport	Miscell- aneous <sup>2</sup>	Flight Instructor <sup>3</sup>
Southern Region—Total.....	6,270	2,781	2,400	644	326	119	445
Alabama.....	359	158	151	23	5	22	17
Florida.....	2,703	1,129	1,101	307	128	38	212
Georgia.....	841	387	317	77	46	14	52
Kentucky.....	299	146	102	31	17	3	25
Mississippi .....	222	114	76	22	5	5	14
North Carolina.....	800	367	296	76	44	17	52
South Carolina.....	378	202	114	35	20	7	22
Tennessee .....	668	278	243	73	61	13	51
Southwest Region—Total .....	4,540	1,897	1,889	455	182	117	317
Arkansas.....	280	124	124	28	3	1	21
Louisiana.....	343	149	134	43	11	6	31
New Mexico.....	389	167	133	42	15	32	33
Oklahoma.....	692	263	321	71	28	9	49
Texas.....	2,836	1,194	1,177	271	125	69	183
Western-Pacific Region—Total .....	8,649	3,271	3,821	927	364	266	611
Arizona.....	1,47	421	507	121	46	52	79
California.....	1,93	2,601	3,082	736	284	190	488
Hawaii .....	15	115	72	33	20	15	20
Nevada .....	14	134	160	37	14	9	24
Outside U. S. —Total <sup>4</sup> .....	19	282	174	105	34	24	40
Other U. S. Areas:.....	32	51	16	7	6	2	0
American Samoa.....	1	1	0	0	0	0	0
Canal Zone.....	0	0	0	0	0	0	0
Guam .....	13	7	3	1	2	0	0
Puerto Rico.....	49	35	8	2	2	2	0
Virgin Island .....	18	7	5	2	2	0	0
Wake Island .....	1	1	0	0	0	0	0

<sup>1</sup> Includes Outside U.S.<sup>2</sup> Includes helicopter, glider, and lighter-than-air.<sup>3</sup> Not included in total.<sup>4</sup> Outside U.S. includes Other U.S. Areas outside of the 50 states and foreign countries.

**TABLE 7.6**  
**ESTIMATED ACTIVE HELICOPTER PILOTS BY CLASS OF CERTIFICATES DECEMBER 31, 1988**

Class of Certificates	Number of Certificates Held
Total .....	31,349
Private Helicopter .....	1,143
Private Helicopter, Private Airplane .....	1,392
Private Helicopter, Private Airplane, Private Glider .....	60
Private Helicopter, Commercial Airplane .....	302
Private Helicopter, Commercial Airplane, Commercial Glider .....	24
Private Gyroplane .....	15
Private Gyroplane, Private Airplane .....	26
Commercial Helicopter .....	5,997
Commercial Helicopter, Private Helicopter .....	4,081
Commercial Helicopter, Private Glider .....	7
Commercial Helicopter, Commercial Glider .....	4
Commercial Helicopter, Private Airplane, Commercial Gyroplane .....	2
Commercial Helicopter, Private Airplane, Private Glider .....	32
Commercial Helicopter, Private Airplane, Commercial Glider .....	17
Commercial Helicopter, Commercial Airplane .....	14,346
Commercial Helicopter, Commercial Airplane, Private Glider .....	150
Commercial Helicopter, Commercial Airplane, Commercial Glider .....	562
Commercial Helicopter, Commercial Airplane, Commercial Gyroplane .....	22
Commercial Helicopter, Commercial Airplane, Commercial Gyroplane, Commercial Glider .....	13
Commercial Helicopter, Commercial Gyroplane .....	2
Commercial Gyroplane, Commercial Airplane .....	24
Commercial Gyroplane, Commercial Airplane, Commercial Glider .....	2
Airline Transport Helicopter .....	440
Airline Transport Airplane, Airline Transport Helicopter .....	1,686

**TABLE 7.7**  
**ESTIMATED ACTIVE GLIDER PILOTS BY CLASS OF CERTIFICATES DECEMBER 31, 1988**

Class of Certificates	Number of Certificates Held
Total .....	19,095
Private Glider .....	6,528
Private Glider, Private Airplane .....	4,059
Private Glider, Private Airplane, Private Helicopter .....	60
Private Glider, Private Airplane, Commercial Helicopter .....	32
Private Glider, Commercial Airplane .....	2,063
Private Glider, Commercial Airplane, Commercial Helicopter .....	150
Private Glider, Commercial Helicopter .....	7
Commercial Glider .....	1,072
Commercial Glider, Commercial Airplane .....	3,703
Commercial Glider, Private Airplane .....	799
Commercial Glider, Private Airplane, Commercial Helicopter .....	17
Commercial Glider, Commercial Helicopter .....	4
Commercial Glider, Commercial Airplane, Private Helicopter .....	24
Commercial Glider, Commercial Airplane, Commercial Helicopter .....	562
Commercial Glider, Commercial Airplane, Commercial Gyroplane .....	2
Commercial Glider, Commercial Airplane, Commercial Gyroplane, Commercial Helicopter .....	13

**TABLE 7.8**  
**ESTIMATED ACTIVE HELICOPTER AND GLIDER PILOTS DECEMBER 31, 1984-88**

Calendar Year	Total Helicopter Pilots <sup>1</sup>		Total Glider Pilots <sup>2</sup>	
	Number	Percent Change	Number	Percent Change
1988.....	31,349	(1)	19,095	(2)
1987.....	31,513	(1)	19,530	(4)
1986.....	31,697	2	20,355	0
1985.....	31,206	2	20,308	(2)
1984.....	30,507	0	20,733	2

<sup>1</sup> Includes pilots with ratings to fly helicopters only.

<sup>2</sup> Includes pilots with ratings to fly gliders only.

**TABLE 7.9**  
**ESTIMATED TOTAL PILOTS AND INSTRUMENT RATED PILOTS  
DECEMBER 31, 1984-88**

Calendar Year	Total Pilots <sup>1</sup>	Instrument Rated Pilots	
		Number	Percent of Total
1988.....	557,103	273,804	49
1987.....	553,637	266,122	48
1986.....	558,845	262,388	47
1985.....	562,888	258,559	46
1984.....	572,295	256,584	45

<sup>1</sup> Excludes student pilots.

**TABLE 7.10**  
**ESTIMATED ACTIVE PILOT CERTIFICATES HELD BY CATEGORY AND AGE GROUP OF HOLDER 1988, 1987, 1983**

Age Group	Total Active Pilots		Student		Private		Commercial		Airline Transport			
	1988	1987	1983	1988	1987	1983	1988	1987	1983	1988	1987	1983
Total .....	694,016	709,118	722,376	136,913	146,016	150,081	299,786	300,949	320,086	143,030	143,645	155,929
14-15 .....	243	252	269	243	264	269	0	0	0	0	0	0
16-19 .....	19,955	18,135	17,836	15,224	15,542	13,588	4,367	3,834	3,912	260	215	184
20-24 .....	55,141	58,029	65,665	23,838	26,443	28,726	20,824	20,522	25,768	8,804	7,791	9,174
25-29 .....	83,355	89,246	95,406	25,187	27,617	29,549	31,398	32,038	38,793	17,542	16,999	17,823
30-34 .....	96,632	102,263	104,484	21,946	23,732	24,939	40,838	42,746	47,320	16,592	16,497	17,603
35-39 .....	96,922	105,580	110,280	18,443	17,420	19,489	44,641	44,903	47,033	16,190	17,514	24,666
40-44 .....	97,034	96,586	93,214	12,939	13,437	12,844	41,632	41,570	41,312	21,387	22,637	18,226
45-49 .....	77,435	73,040	72,168	8,251	8,083	8,073	33,189	32,581	32,581	18,282	18,146	18,643
50-54 .....	57,709	59,077	61,657	4,935	5,234	5,738	25,962	26,151	30,204	13,897	14,349	15,456
55-59 .....	46,320	48,211	47,428	3,363	3,621	3,453	24,862	27,393	11,394	11,140	10,279	12,263
60 and over .....	62,510	58,699	53,969	3,582	3,452	3,050	32,688	31,094	25,780	18,357	17,871	6,014
												6,063

**TYPE OF PILOT CERTIFICATES**

Age Group	Helicopter (Only)		Glider (Only) <sup>1</sup>		Lighter-than-air <sup>1</sup>		Flight Instruction <sup>2</sup>	
	1988	1987	1983	1988	1987	1983	1988	1987
Total .....	8,668	8,702	7,532	7,600	7,901	8,390	1,111	1,153
14-15 .....	0	0	0	0	0	0	0	0
16-19 .....	18	10	13	112	118	126	14	13
20-24 .....	854	891	778	428	527	42	47	62
25-29 .....	2,228	2,416	1,963	574	678	982	121	132
30-34 .....	1,749	1,709	1,525	1,052	1,237	1,368	211	243
35-39 .....	1,396	1,575	1,876	1,307	1,363	1,356	276	304
40-44 .....	1,456	1,322	809	1,171	1,112	929	223	212
45-49 .....	536	441	339	764	732	657	108	93
50-54 .....	222	198	126	581	549	621	49	48
55-59 .....	90	86	71	542	596	668	39	62
60 and over .....	59	54	32	1,151	1,088	1,156	28	21
							17	17

<sup>1</sup> Glider and lighter-than-air pilots are not required to have a medical examination; however, totals above represent pilots who received a medical examination.

<sup>2</sup> Not included in total active pilots.

**TABLE 7.11**  
**AVERAGE AGE OF ACTIVE PILOTS BY CATEGORY DECEMBER 31, 1979 - 1988**

Year	Total <sup>1</sup>	Student	Private	Commercial	Airline Transport
1979..	37.2	30.5	38.7	40.2	42.1
1980.....	37.5	30.5	39.0	40.4	41.9
1981.....	37.8	30.7	39.3	40.7	42.0
1982.....	38.3	31.2	39.5	41.0	42.3
1983.....	38.8	31.7	40.0	41.5	42.5
1984.....	39.2	32.1	40.4	42.0	42.7
1985.....	39.5	32.4	40.8	42.4	42.8
1986.....	39.7	32.1	41.1	42.6	43.0
1987.....	39.9	32.3	41.4	42.7	43.1
1988.....	40.1	32.5	41.4	42.6	43.2

<sup>1</sup> Includes helicopter (only), glider (only), and lighter-than-air pilots not shown separately.

**TABLE 7.12**  
**ESTIMATED INSTRUMENT RATING HELD BY CLASS OF CERTIFICATES DECEMBER 31, 1988 AND 1987**

Class of Certificates	1988	1987	Percent Change 1988-1987
Total—All Pilots .....	273,804	266,122	3%
Private Pilots—Total .....	49,381	47,746	3%
Private Airplane (only).....	45,316	43,885	3%
Private Airplane, Private Glider .....	1,007	983	2%
Private Airplane, Commercial Glider .....	108	102	6%
Private Airplane, Private Helicopter .....	356	332	7%
Private Airplane, Private Glider, Private Helicopter .....	25	25	0%
Private Airplane, Commercial Helicopter .....	2,537	2,385	6%
Private Airplane, Private Gyroplane .....	3	3	0%
Private Airplane, Private Glider, Commercial Helicopter .....	15	21	-29%
Private Airplane, Commercial Glider, Commercial Helicopter .....	13	9	44%
Private Airplane, Other .....	1	1	0%
Commercial Pilots—Total .....	121,674	121,072	0%
Commercial Airplane (only) .....	102,982	102,017	1%
Commercial Airplane, Private Glider .....	1,778	1,756	1%
Commercial Airplane, Commercial Glider .....	3,033	3,098	-2%
Commercial Airplane, Private Helicopter .....	264	234	13%
Commercial Airplane, Commercial Helicopter .....	12,911	13,250	-3%
Commercial Airplane, Private Glider, Commercial Helicopter .....	132	134	-1%
Commercial Airplane, Commercial Glider, Commercial Helicopter .....	506	526	-4%
Commercial Airplane, Commercial Gyroplane .....	15	15	0%
Commercial Airplane, Commercial Helicopter, Commercial Gyroplane .....	18	15	20%
Commercial Airplane, Commercial Gyroplane, Commercial Glider .....	1	1	0%
Commercial Airplane, Commercial Glider, Private Helicopter .....	21	16	31%
Commercial Airplane, Commercial Gyroplane, Commercial Helicopter Commercial Glider .....	13	10	30%
Airline Transport Pilots—Total .....	96,968	91,287	6%
Airline Transport Airplane (only) .....	95,282	89,694	6%
Airline Transport Airplane, Airline Transport Helicopter .....	1,686	1,593	6%
Other .....	5,781	6,017	-4%
Rotorcraft Pilots—Total .....			
Commercial Helicopter .....	5,695	5,927	-4%
Airline Transport Helicopter .....	75	81	-7%
Other .....	11	9	22%

TABLE 7.13

ESTIMATED INSTRUMENT RATINGS HELD, BY CLASS OF CERTIFICATES, BY FAA REGION: DECEMBER 31, 1988

Class of Certificate	Total <sup>1</sup>	Alaskan	Central	Eastern	Great Lakes	New England	North-west Mountain	Southern	Southwest	Western Pacific	Outside U.S. <sup>2</sup>
Total—All Pilots .....	273,804	3,492	12,269	35,565	40,639	12,321	24,535	52,137	34,598	46,913	11,335
Private Pilots—Total.....	49,381	359	2,711	6,966	9,601	2,476	3,782	8,421	5,622	9,073	370
Private Airplane (only).....	45,316	299	2,502	6,334	9,101	2,298	3,430	7,479	5,117	8,417	339
Private Airplane, Private Glider.....	1,007	6	34	173	156	57	67	166	99	240	9
Private Airplane, Commercial Glider.....	108	2	3	18	13	14	20	5	12	21	0
Private Airplane, Private Helicopter.....	356	0	19	44	47	20	34	69	42	77	4
Private Airplane, Private Glider, Private Helicopter.....	25	0	0	6	4	2	2	3	2	6	0
Private Airplane, Commercial Helicopter.....	2,537	50	152	386	275	85	223	693	344	311	18
Private Airplane, Private Gyroplane.....	3	0	0	0	2	0	0	0	1	0	0
Private Airplane, Private Glider, Commercial Helicopter.....	15	1	1	1	0	0	5	4	3	0	0
Private Airplane, Commercial Glider, Commercial Helicopter.....	13	1	0	4	2	0	1	2	2	1	0
Private Airplane, Other .....	1	0	0	0	1	0	0	0	0	0	0
Commercial Pilots—Total .....	121,674	2,049	5,910	15,979	18,343	5,037	11,022	22,574	15,606	20,886	4,268
Commercial Airplane (only).....	102,982	1,758	5,122	13,302	16,316	4,294	9,201	18,494	13,163	17,350	3,982
Commercial Airplane, Private Glider.....	1,778	20	82	281	238	71	183	301	195	386	21
Commercial Airplane, Commercial Glider.....	3,033	20	115	449	442	186	357	458	342	632	32
Commercial Airplane, Private Helicopter.....	264	4	10	40	51	10	21	42	35	43	8
Commercial Airplane, Commercial Helicopter.....	12,911	236	553	1,792	1,216	441	1,184	3,166	1,793	2,315	215
Commercial Airplane, Private Glider, Commercial Helicopter.....	132	1	6	23	22	6	10	24	14	24	2
Commercial Airplane, Commercial Glider, Commercial Helicopter.....	506	9	21	83	45	27	56	85	55	120	5
Commercial Airplane, Commercial Gyroplane.....	15	0	0	2	2	1	4	1	3	2	0
Commercial Airplane, Commercial Helicopter, Commercial Gyroplane.....	18	1	1	0	4	0	4	2	1	4	1
Commercial Airplane, Commercial Gyroplane, Commercial Glider.....	1	0	0	0	0	0	0	0	0	1	0
Commercial Airplane, Commercial Glider, Private Helicopter.....	21	0	0	5	5	1	1	0	3	5	1
Commercial Airplane, Commercial Gyroplane, Commercial Helicopter, Commercial Glider.....	13	0	0	2	2	0	1	1	2	4	1
Airline Transport Pilots—Total .....	96968	1011	3382	11669	12169	4582	9332	19350	12552	16293	6528
Airline Transport Airplane (only).....	95282	972	3343	11371	12026	4467	9198	19018	12287	16024	6576
Airline Transport Airplane, Airline Transport Helicopter.....	1686	39	39	298	143	115	134	332	265	269	52
Rotorcraft Pilots (only)—Total.....	5781	73	266	951	526	226	399	1792	818	661	69
Commercial Helicopter.....	5695	72	265	939	516	222	394	1779	797	650	61
Airline Transport Helicopter.....	75	1	0	10	10	3	5	12	19	8	7
Other.....	11	0	1	2	0	1	0	1	2	3	1

**TABLE 7.14**  
**ESTIMATED ACTIVE NONPILOT AIRMEN CERTIFICATES HELD, BY FAA REGION AND STATE: DECEMBER 31, 1988<sup>1</sup>**

FAA Region and State	Total Nonpilot Airmen	Mechanic	Parachute Rigger	Ground Instructor	Dispatcher	Flight Navigator	Flight Engineer
<b>Total<sup>2</sup></b> .....	<b>448,710</b>	<b>312,419</b>	<b>9,770</b>	<b>62,582</b>	<b>10,020</b>	<b>1,400</b>	<b>52,519</b>
United States—Total.....	428,148	298,396	9,606	61,025	8,077	1,295	49,749
Alaskan Region—Total.....	4,524	3,151	154	712	158	5	344
Central Region—Total.....	22,221	17,239	426	3,114	152	11	1,279
Iowa.....	2,755	2,032	87	526	9	0	101
Kansas.....	6,187	4,789	109	926	42	4	317
Missouri.....	11,438	9,073	162	1,335	97	3	768
Nebraska.....	1,841	1,345	68	327	4	4	93
Eastern Region—Total .....	63,872	45,826	1,649	8,651	1,966	221	5,559
Delaware.....	1,149	814	25	155	14	6	135
District of Columbia .....	338	201	19	82	14	0	22
Maryland.....	4,150	2,538	138	823	57	13	581
New Jersey.....	11,163	7,755	242	1,368	372	64	1,362
New York .....	24,552	19,323	392	2,600	1,100	63	1,074
Pennsylvania.....	14,762	10,848	364	2,111	260	42	1,137
Virginia.....	6,796	3,692	423	1,301	145	33	1,202
West Virginia.....	962	655	46	211	4	0	46
Great Lakes Region—Total .....	58,437	40,032	1,227	9,887	963	38	6,290
Illinois.....	16,080	10,535	281	2,540	321	13	2,390
Indiana.....	5,826	4,139	191	976	68	4	448
Michigan.....	9,507	6,658	185	1,873	108	7	676
Minnesota.....	10,016	7,775	137	1,239	298	2	1,565
North Dakota.....	908	697	25	146	2	0	38
Ohio.....	10,794	7,665	260	2,026	115	6	722
South Dakota.....	942	664	22	201	3	1	51
Wisconsin.....	4,364	2,899	126	886	48	5	400
New England Region—Total .....	19,268	13,206	350	2,763	259	157	2,533
Connecticut.....	5,831	3,761	81	779	81	101	1,028
Maine .....	1,388	905	45	242	28	8	160
Massachusetts.....	8,547	6,633	165	1,079	94	13	563
New Hampshire.....	2,040	953	31	370	31	27	628
Rhode Island .....	823	562	18	156	10	3	74
Vermont .....	639	392	10	137	15	5	80
Northwest Mountain Region—Total.....	37,996	24,356	1,308	5,660	497	147	6,028
Colorado.....	11,680	7,102	158	1,797	193	27	2,403
Idaho.....	1,673	1,093	156	301	11	3	109
Montana.....	1,996	1,252	278	364	4	5	93
Oregon.....	4,111	2,870	238	681	38	28	256
Utah .....	2,881	1,816	79	401	16	4	565
Washington.....	14,656	9,473	366	1,961	225	77	2,554
Wyoming.....	999	750	33	155	10	3	48

TABLE 7.14—Continued

ESTIMATED ACTIVE NONPILOT AIRMEN CERTIFICATES HELD, BY FAA REGION AND STATE. DECEMBER 31, 1988<sup>1</sup>

FAA Region and State	Total Nonpilot Airmen	Mechanic	Parachute Rigger	Ground Instructor	Dispatcher	Flight Navigator	Flight Engineer
Southern Region—Total.....	77,950	51,822	1,869	10,725	1,870	234	11,430
Alabama.....	5,864	4,668	136	856	9	7	188
Florida.....	35,922	24,783	545	4,813	1,110	184	4,487
Georgia.....	15,892	10,161	288	1,523	304	12	3,604
Kentucky.....	2,804	1,709	158	461	90	0	386
Mississippi.....	1,703	1,184	42	344	8	3	122
North Carolina.....	7,014	4,144	439	1,161	147	15	1,108
South Carolina.....	2,645	1,641	93	545	23	5	338
Tennessee.....	6,106	3,532	168	1,022	179	8	1,197
Southwest Region—Total .....	58,717	41,834	991	8,266	747	78	6,801
Arkansas.....	2,370	1,673	72	440	16	2	167
Louisiana.....	4,586	3,425	90	656	43	5	367
New Mexico.....	2,105	1,405	66	483	22	3	126
Oklahoma.....	13,092	11,205	162	1,339	32	9	345
Texas.....	36,564	24,126	601	5,348	634	59	5,796
Western-Pacific Region—Total .....	85,163	60,930	1,632	11,247	1,465	404	9,485
Arizona.....	8,929	6,274	195	1,454	226	20	760
California.....	70,455	50,990	1,323	8,897	1,063	316	7,866
Hawaii.....	3,008	2,107	59	363	134	13	332
Nevada.....	2,771	1,559	55	533	42	55	527
Outside U. S.—Total <sup>3</sup> .....	4 562	14,023	164	1,557	1,943	105	2,770
Other U. S. Areas.....	1,557	1,174	34	197	62	0	90
American Samoa.....	11	7	0	3	0	0	1
Canal Zone.....	39	16	18	3	2	0	0
Guam.....	160	89	2	22	7	0	40
Puerto Rico.....	1,195	950	12	146	50	0	37
Virgin Island.....	143	103	2	23	3	0	12
Wake Island.....	9	9	0	0	0	0	0

<sup>1</sup> Data for flight engineers and flight navigators represent total active ratings held. Data for dispatchers, mechanics, parachute riggers and ground instructors represent total ratings issued to date. These ratings retain their validity.

<sup>2</sup> Includes Outside U. S.

<sup>3</sup> Outside U.S. includes Other U.S. Areas outside of the 50 states and foreign countries.

**TABLE 7.15**  
**ESTIMATED ACTIVE WOMEN NONPILOT CERTIFICATES HELD, BY FAA REGION AND STATE: DECEMBER 31, 1988<sup>1</sup>**

FAA Region and State	Total Nonpilot Women	Mechanic	Parachute Rigger	Ground Instructor	Dispatcher	Flight Navigator	Flight Engineer
<b>Total<sup>2</sup></b> .....	<b>7,842</b>	<b>2,565</b>	<b>441</b>	<b>3,391</b>	<b>622</b>	<b>1</b>	<b>822</b>
<b>United States—Total</b> .....	<b>7,733</b>	<b>2,550</b>	<b>435</b>	<b>3,339</b>	<b>597</b>	<b>0</b>	<b>812</b>
<b>Alaskan Region—Total</b> .....	<b>129</b>	<b>28</b>	<b>11</b>	<b>48</b>	<b>31</b>	<b>0</b>	<b>11</b>
<b>Central Region—Total</b> .....	<b>338</b>	<b>156</b>	<b>18</b>	<b>149</b>	<b>5</b>	<b>0</b>	<b>10</b>
Iowa.....	74	39	2	32	1	0	0
Kansas.....	113	60	6	45	0	0	2
Missouri.....	124	52	7	53	4	0	8
Nebraska.....	27	5	3	19	0	0	0
<b>Eastern Region—Total</b> .....	<b>1,006</b>	<b>234</b>	<b>82</b>	<b>442</b>	<b>140</b>	<b>0</b>	<b>108</b>
Delaware.....	22	9	1	8	1	0	2
District of Columbia .....	10	0	1	5	1	0	3
Maryland.....	95	17	4	50	6	0	18
New Jersey.....	140	32	6	56	29	0	17
New York .....	338	92	13	137	74	0	22
Pennsylvania .....	228	47	25	108	23	0	25
Virginia.....	149	21	32	71	5	0	20
West Virginia.....	24	16	0	7	1	0	0
<b>Great Lakes Region—Total</b> .....	<b>1,273</b>	<b>424</b>	<b>59</b>	<b>577</b>	<b>88</b>	<b>0</b>	<b>125</b>
Illinois.....	364	124	14	152	22	0	52
Indiana.....	127	23	19	56	9	0	29
Michigan.....	214	60	6	122	13	0	13
Minnesota.....	162	60	5	52	23	0	22
North Dakota.....	14	2	0	8	1	0	3
Ohio .....	283	132	11	117	13	0	10
South Dakota.....	18	4	0	14	0	0	0
Wisconsin .....	91	19	4	56	7	0	5
<b>New England Region—Total</b> .....	<b>355</b>	<b>115</b>	<b>14</b>	<b>162</b>	<b>22</b>	<b>0</b>	<b>42</b>
Connecticut.....	122	47	4	40	9	0	22
Maine.....	26	5	1	17	2	0	1
Massachusetts.....	132	39	7	67	7	0	12
New Hampshire.....	49	19	1	20	3	0	6
Rhode Island.....	12	3	0	8	1	0	0
Vermont .....	14	2	1	10	0	0	1
<b>Northwest Mountain Region—Total</b> .....	<b>746</b>	<b>256</b>	<b>29</b>	<b>321</b>	<b>34</b>	<b>0</b>	<b>106</b>
Colorado.....	248	81	1	101	11	0	54
Idaho.....	30	8	2	16	3	0	1
Montana.....	35	8	5	21	1	0	0
Oregon.....	81	16	9	51	2	0	3
Utah.....	49	15	6	19	1	0	8
Washington .....	285	123	4	104	14	0	40
Wyoming.....	18	5	2	9	2	0	0

**TABLE 7.15—Continued**  
**ESTIMATED ACTIVE WOMEN NONPILOT CERTIFICATES HELD, BY FAA REGION AND STATE: DECEMBER 31, 1988<sup>1</sup>**

FAA Region and State	Total Nonpilot Women	Mechanic	Parachute Rigger	Ground Instructor	Dispatcher	Flight Navigator	Flight Engineer
Southern Region—Total.....	1,390	380	122	580	127	0	181
Alabama.....	137	43	6	86	1	0	1
Florida.....	564	179	16	235	70	0	64
Georgia.....	166	53	11	58	14	0	30
Kentucky.....	87	23	9	30	15	0	10
Mississippi .....	24	5	1	17	0	0	1
North Carolina.....	175	32	41	74	8	0	20
South Carolina.....	59	11	4	28	3	0	13
Tennessee .....	178	34	34	52	16	0	42
Southwest Region—Total .....	990	373	48	434	55	0	80
Arkansas.....	30	9	0	18	0	0	3
Louisiana .....	89	40	2	38	7	0	2
New Mexico.....	68	16	3	41	3	0	5
Oklahoma .....	188	94	8	76	1	0	9
Texas.....	615	214	35	261	44	0	61
Western-Pacific Region—Total .....	1,506	584	52	626	95	0	149
Arizona.....	160	49	6	83	14	0	8
California.....	1,245	516	44	497	64	0	124
Hawaii .....	56	10	0	25	12	0	9
Nevada .....	45	9	2	21	5	0	8
Outside U. S.—Total <sup>3</sup> .....	109	15	6	52	25	1	10
Other U. S. Areas.....	15	6	0	5	1	0	3
American Samoa.....	0	0	0	0	0	0	0
Canal Zone.....	0	0	0	0	0	0	0
Guam.....	3	1	0	0	0	0	0
Puerto Rico.....	8	4	0	3	1	0	0
Virgin Island.....	4	1	0	2	0	0	1
Wake Island .....	0	0	0	0	0	0	0

<sup>1</sup> Data for flight engineers and flight navigators represent total active ratings held. Data for dispatchers, mechanics, parachute riggers and ground instructors represent total ratings issued to date. These ratings retain their validity.

<sup>2</sup> Includes Outside U. S.

<sup>3</sup> Outside U.S. includes Other U.S. Areas outside of the 50 states and foreign countries

TABLE 7.16  
PILOT CERTIFICATES ISSUED, BY CATEGORY: CALENDAR YEARS 1984-1988

Category of Certificates	1984		1985		1986		1987		1988	
	Original	Additional								
Pilot—Total	141,845	30,469	138,589	28,420	141,625	32,628	149,640	39,990	148,018	37,921
Student	90,167	0	86,060	0	88,699	0	85,611	0	86,193	0
Private	36,545	11,784	35,402	11,686	34,816	12,672	42,278	16,302	39,900	15,800
Commercial	7,702	8,892	8,404	7,197	8,889	9,241	11,314	11,365	12,042	10,597
Airline Transport	5,099	9,335	6,081	9,192	6,998	10,372	7,678	11,956	7,461	11,269
Helicopter (only)	1,808	319	2,105	2,07	2,209	234	2,217	293	1,947	287
Glider (only)	524	139	537	138	514	109	542	74	475	28
Nonpilot—Total <sup>r</sup>	15,438	4,808	16,432	4,713	16,470	5,010	21,878	5,486	21,317	6,422
Mechanic	10,719	4,042	10,559	3,429	10,998	3,289	15,089	4,195	14,907	4,353
Parachute Rigger	149	12	157	9	149	11	194	11	142	8
Ground Instructor	1,283	293	1,359	343	1,386	323	1,825	366	1,716	334
Dispatcher	755	3	622	3	516	1	533	3	510	2
Flight Navigator	14	0	1	0	17	0	4	0	270	315
Flight Engineer	2,518	458	3,734	929	3,404	1,386	4,233	911	3,772	1,416
Flight Instructor Certificates <sup>1</sup>	4,075	6,828	4,298	5,921	4,628	5,421	6,327	6,378	4,898	5,234
Instrument Ratings <sup>2</sup>	0	10,845	0	11,673	0	13,688	0	18,296	0	16,810

<sup>r</sup> Preliminary

<sup>1</sup> Revised  
NOTE: Additional ratings are entered on current airman certificates as follows: Private, commercial, and airline transport pilot—aircraft category, class, and type instrument rating. Helicopter pilot—instrument and type ratings. Flight instructor—ratings for each aircraft category in which the holder is qualified, and for instrument flying instructions. Mechanic—airframe and powerplant ratings. Parachute rigger—senior or master rigger—senior or master rigger ratings. Ground instructor—ratings for each subject in which the holder is qualified to give instruction.

<sup>2</sup> Not included in total

<sup>3</sup> Special ratings shown on pilot certificates represented above; not included in total.

TABLE 7.17  
PILOT CERTIFICATES ISSUED, BY CATEGORY AND CONDUCTOR: DECEMBER 31, 1988

Category of Certificates	Total Ratings Issued		Original Issuances			Additional Ratings			
	Total	Ratings Issued	Total Examiner	Inspector	No Test	Total	Examiner	Inspector	No test
Pilot—Total	185,939	148,018	50,517	87,098	10,403	37,921	33,617	1,299	3,005
Student	86,193	86,193	0	86,193	0	0	0	0	0
Private	55,700	39,900	34,241	172	5,487	15,800	14,987	92	721
Commercial	22,639	12,042	8,550	119	3,373	10,597	8,890	90	1,617
Airline Transport	18,670	7,461	6,335	48	558	9,524	1,104	581	581
Helicopter (only)	2,234	1,947	938	38	971	287	189	13	85
Glider (only)	503	475	453	8	14	28	27	0	1
Nonpilot—Total *	27,739	21,317	15,497	522	5,298	6,422	4,654	62	1,706
Mechanic	19,260	14,907	12,155	58	2,694	4,353	4,049	6	298
Parachute Rigger	150	142	82	10	50	8	7	1	0
Ground Instructor	2,050	1,716	126	28	1,562	334	26	1	307
Dispatcher	512	510	299	78	133	2	0	0	2
Flight Navigator	585	270	231	1	38	315	295	2	18
Flight Engineer	5,182	3,772	2,604	347	821	1,410	277	52	1,081
Flight Instructor Certificates *	10,132	4,898	3,898	951	49	5,234	5,080	139	15

\* Preliminary  
NOTE: Excludes Renewals

Additional ratings are entered on current aircraft certificates as follows:

Private, commercial, and airline transport pilot—aircraft category, class, and type instrument rating.

Helicopter pilot—instrument and type ratings.

Flight instructor—ratings for each aircraft category in which the holder is qualified, and for instrument flying instructions.

Mechanic—airframe and powerplant ratings.

Parachute rigger—senior or master rigger ratings.

Ground instructor—ratings for each subject in which the holder is qualified to give instruction.

\* Special ratings shown on pilot certificates represented above; not included in total

**TABLE 7.18**  
**INSTRUMENT RATINGS ISSUED: 1988, 1987, 1983**

Class of Certificates	1988	1987	1983	Percent Change 1988-1987
Total—All Pilots .....	16,810	18,296	11,078	-8%
Private Pilots—Total.....	9,772	11,142	7,034	-12%
Private Airplane (only).....	8,946	10,397	6,549	-14%
Private Airplane, Private Glider.....	92	135	92	-32%
Private Airplane, Commercial Glider .....	18	12	5	50%
Private Airplane, Private Helicopter.....	40	35	20	14%
Private Airplane, Private Glider, Private Helicopter .....	0	1	1	-100%
Private Airplane, Commercial Helicopter .....	272	234	149	16%
Private Airplane, Other .....	404	328	218	23%
Commercial Pilots—Total .....	6,101	5,996	2,956	2%
Commercial Airplane (only).....	5,267	5,044	2,376	4%
Commercial Airplane, Private Glider .....	49	48	23	2%
Commercial Airplane, Commercial Glider .....	41	61	36	-33%
Commercial Airplane, Private Helicopter .....	11	14	5	-21%
Commercial Airplane, Commercial Helicopter .....	723	814	495	-11%
Commercial Airplane, Private Glider, Commercial Helicopter.....	3	7	4	-57%
Commercial Airplane, Commercial Glider, Commercial Helicopter .....	6	7	14	-14%
Commercial Airplane, Other .....	1	1	3	0%
Rotorcraft Pilots—Total .....	937	1,158	1,088	-19%
Commercial Helicopter.....	909	1,135	1,085	-20%
Commercial Helicopter, Airline Transport Helicopter.....	22	20	0	10%
Commercial Helicopter, Commercial Glider.....	0	1	1	
Commercial Helicopter, Other.....	6	2	2	200%

**TABLE 7.19**  
**STUDENT CERTIFICATES ISSUED, BY MONTH: 1984 - 1988**

Month	1984	1985	1986	1987	1988
Total .....	93,239	90,167 <sup>P</sup>	86,060	88,706	84,958 <sup>P</sup>
January .....	6,511	7,485	6,414	6,641	6,098
February.....	6,146	6,338	5,233	5,590	6,543
March.....	7,724	7,086	6,809	6,472	7,125
April.....	6,737	6,931	7,492	7,488	7,139
May.....	7,650	7,784	7,749	7,415	6,164
June.....	9,344	8,533	8,279	8,211	8,491
July.....	9,253	9,202	9,249	9,648	8,973
August .....	10,426	9,559	8,892	8,886	8,389
September .....	9,971	7,781	7,973	8,961	8,094 <sup>P</sup>
October.....	8,040	8,129	7,892	8,133	7,537 <sup>P</sup>
November .....	6,500	6,291	5,579	5,809	5,750 <sup>P</sup>
December.....	4,937	5,048	4,499	5,452	4,655 <sup>P</sup>

<sup>P</sup> Preliminary

<sup>R</sup> Revised

## VIII. GENERAL AVIATION AIRCRAFT

General aviation aircraft activity information was obtained using the General Aviation Activity and Avionics Survey, which is mailed to the owners of a sample of registered general aviation aircraft. The sample is a scientifically designed random sample which represents all general aviation aircraft registered in the United States.

The survey collects data relative to flight hours, airframe hours and the avionics equipment on board the aircraft. In addition, the survey collects information about the number of hours flown under instrument flight rules, fuel consumption rates, and the state where the aircraft is based.

Because the estimates are derived from a sample—not the total population of aircraft—a certain amount of sampling error is introduced. The user must consider this error along with the estimate itself when making an inference or drawing any conclusions about the aircraft population. Although the exact value of the sample error is unknown, a quantity known as the standard error is used to approximate it. Using the standard error, one can develop an interval within which the true population estimate will lie with a known probability. The probability that the true value lies within the interval depends on the width of the interval, i.e., the estimate plus or minus 1, 2, or 3 times the standard error. The table below shows selected interval widths and their corresponding confidence.

Width of Interval	Approximate Confidence That Interval Includes true Value
1 standard error	68%
2 standard errors	95%
3 standard errors	99%

For example, if the estimate for the total number of active piston powered rotorcraft were 2,658 and the standard error was 176, then the 95% confidence interval would be  $2,658 + 2(176)$  or (2306, 3010). One would say that there is a 95% chance that the number of active piston powered rotorcraft lies between 2306 and 3010.

In some tables, the standard error is expressed as a percent. To calculate the standard error, multiply the estimated by the percentage. To derive the 95% confidence interval, proceed as before. For example, if total hours flown were 35,792 thousand hours and the percentage standard error was 3.0%, the 95% confidence interval would be:

$$35,792 + (2 \times 3\% \times 35,792) = 35,792 (+,-) 2148 = (33,644: 37,940)$$

The standard error, percent standard error, or a code for the standard error is shown for each estimate made from the sample in this chapter.

More detailed estimates and more detailed discussion of the survey and its methodology are available in *General Aviation Activity and Avionics Survey*.

TABLE 8.1

ACTIVE GENERAL AVIATION AIRCRAFT BY AIRCRAFT TYPE AND PRIMARY USE: 1988 (Percent Standard Error is Shown in Parenthesis)

Aircraft Type	Total	Executive	Business	Personal	Instructional	Aerial Application	Aerial Observation	Other Work	Commuter Air Carrier	Air Taxi	Other
Fixed-Wing—Total .....	197,003 (0.6%)	9,847 (4.1%)	34,340 (3.1%)	116,481 (1.1%)	15,871 (4.9%)	6,207 (3.9%)	3,685 (11.0%)	1,196 (19.3%)	858 (16.0%)	5,557 (7.6%)	2,939 (10.7%)
Piston—Total.....	187,556 (0.6%)	3,270 (11.1%)	33,495 (3.2%)	116,273 (1.1%)	15,851 (4.9%)	6,093 (4.0%)	3,664 (11.0%)	1,188 (19.4%)	451 (27.4%)	4,675 (8.7%)	2,574 (11.9%)
One Engine .....	164,766 (0.6%)	1,008 (21.5%)	24,874 (3.8%)	110,104 (1.1%)	14,835 (5.1%)	5,825 (3.9%)	3,156 (12.2%)	1,137 (20.0%)	77 (39.4%)	1,770 (15.4%)	1,974 (14.3%)
Two Engine .....	22,698 (1.4%)	2,262 (12.9%)	8,620 (5.5%)	6,167 (6.9%)	1,016 (17.8%)	245 (35.2%)	508 (23.5%)	51 (77.1%)	370 (32.3%)	2,850 (10.6%)	585 (19.7%)
Other Piston .....	99 (21.7%)	0 (0.0%)	0 (0.0%)	2 (302.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (209.3%)	55 (28.7%)	15 (99.6%)
Turboprop—Total .....	5,259 (1.7%)	3,240 (4.8%)	648 (18.2%)	129 (42.6%)	9 (190.1%)	114 (24.6%)	14 (58.9%)	8 (125.4%)	402 (14.8%)	484 (19.7%)	212 (27.7%)
Twr Engine .....	5,057 (1.8%)	3,229 (4.8%)	631 (18.6%)	95 (55.3%)	9 (190.1%)	10 (231.4%)	12 (57.1%)	8 (125.4%)	398 (14.9%)	484 (19.7%)	181 (31.1%)
Other Turboprop .....	202 (7.1%)	10 (99.2%)	34 (48.7%)	0 (48.4%)	0 (0.0%)	104 (15.9%)	1 (314.3%)	0 (0.0%)	4 (161.6%)	0 (0.0%)	31 (53.7%)
Turbojet—Total.....	4,187 (2.0%)	3,337 (2.8%)	197 (27.8%)	79 (28.3%)	11 (76.9%)	0 (0.0%)	0 (91.6%)	7 (0.0%)	0 (105.7%)	5 (17.4%)	153 (25.0%)
Two Engine .....	3,821 (2.1%)	3,067 (2.9%)	183 (29.4%)	72 (29.7%)	7 (85.1%)	0 (0.0%)	0 (91.6%)	7 (0.0%)	0 (105.7%)	5 (17.5%)	85 (38.7%)
Other Turbojet....	367 (5.5%)	271 (7.8%)	14 (73.0%)	7 (93.2%)	4 (152.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (146.8%)	68 (28.7%)
Rotorcraft—Total.....	6,406 (3.6%)	991 (14.1%)	468 (19.8%)	935 (12.7%)	334 (19.3%)	835 (16.9%)	772 (18.3%)	238 (30.5%)	113 (55.1%)	962 (14.8%)	758 (19.1%)
Piston.....	2,584 (7.9%)	17 (54.9%)	212 (24.2%)	821 (12.8%)	294 (19.0%)	454 (25.0%)	404 (23.7%)	65 (66.8%)	5 (129.6%)	14 (76.8%)	298 (35.0%)
Turbine .....	3,822 (2.7%)	974 (14.3%)	256 (30.0%)	114 (48.1%)	40 (80.3%)	381 (21.9%)	369 (28.4%)	173 (33.7%)	108 (57.4%)	948 (15.0%)	460 (21.9%)
Other—Total.....	6,857 (4.1%)	44 (49.5%)	110 (58.8%)	5,141 (4.0%)	468 (23.2%)	0 (0.0%)	302 (38.8%)	407 (30.7%)	2 (126.1%)	0 (0.0%)	384 (26.2%)
Total All Aircraft... ..	210,266 (0.5%)	10,882 (4.0%)	34,918 (3.1%)	122,557 (1.1%)	16,647 (4.8%)	7,042 (4.0%)	4,759 (9.3%)	973 (14.8%)	6,518 (15.5%)	6,518 (6.9%)	4,081 (8.8%)

**TABLE 8.2**  
**ACTIVE GENERAL AVIATION AIRCRAFT BY AIRCRAFT TYPE 1980 - 1988 (Standard Error is Shown in Parenthesis)**

	1988	1987	1986	1985	1984	1983	1982	1981	1980
Fixed-Wing—Total.....	197,003 (0.6%)	204,067 (0.5%)	206,090 (0.5%)	197,974 (0.6%)	207,571 (0.5%)	200,831 (0.7%)	198,377 (0.6%)	201,201 (0.5%)	200,097 (0.5%)
Piston—Total .....	187,556 (0.6%)	194,455 (0.5%)	195,646 (0.6%)	188,191 (0.6%)	197,442 (0.5%)	191,480 (0.7%)	189,195 (0.6%)	193,370 (0.5%)	193,014 (0.5%)
One Engine.....	164,760 (0.6%)	171,035 (0.6%)	171,777 (0.6%)	164,385 (0.7%)	171,922 (0.5%)	166,247 (0.8%)	164,173 (0.7%)	167,898 (0.6%)	168,435 (0.5%)
Two Engine.....	22,698 (1.4%)	23,307 (1.3%)	23,721 (1.6%)	23,659 (1.5%)	25,258 (1.2%)	24,910 (1.4%)	24,882 (1.4%)	25,356 (1.2%)	24,366 (1.2%)
Other Piston .....	99 (21.7%)	112 (25.0%)	148 (24.3%)	148 (20.9%)	262 (13.4%)	143 (9.8%)	140 (17.1%)	114 (25.4%)	212 (8.0%)
Turboprop—Total .....	5,259 (1.7%)	5,274 (1.9%)	5,964 (1.9%)	5,407 (2.1%)	5,809 (1.0%)	5,453 (1.7%)	5,186 (1.2%)	4,660 (1.1%)	4,090 (1.1%)
Two Engine.....	5,057 (1.8%)	5,060 (1.9%)	5,779 (1.9%)	5,240 (2.1%)	5,633 (1.0%)	5,311 (1.6%)	5,037 (1.1%)	4,525 (1.1%)	3,966 (1.1%)
Other Turboprop .....	202 (7.1%)	214 (8.9%)	185 (16.2%)	167 (7.8%)	176 (8.5%)	142 (26.8%)	149 (18.8%)	134 (3.7%)	123 (8.1%)
Turbojet—Total .....	4,187 (2.0%)	4,338 (1.5%)	4,480 (2.2%)	4,375 (1.7%)	4,320 (1.6%)	3,898 (3.3%)	3,996 (2.8%)	3,171 (2.3%)	2,992 (1.3%)
Two Engine.....	3,821 (2.1%)	3,900 (1.6%)	4,037 (1.6%)	3,914 (1.7%)	3,780 (1.3%)	3,447 (2.7%)	3,309 (2.5%)	2,808 (2.4%)	2,551 (1.5%)
Other Turbojet .....	367 (5.5%)	438 (5.0%)	444 (16.2%)	460 (7.2%)	540 (26.9%)	451 (20.2%)	687 (10.6%)	362 (6.4%)	441 (2.9%)
Rotorcraft—Total.....	6,406 (3.6%)	6,333 (3.2%)	6,943 (3.1%)	6,418 (4.0%)	7,096 (3.1%)	6,540 (3.7%)	6,169 (3.7%)	6,974 (2.7%)	6,001 (2.4%)
Piston .....	2,584 (7.9%)	2,813 (5.0%)	2,921 (6.0%)	2,877 (7.0%)	2,936 (6.3%)	2,541 (7.5%)	2,419 (7.4%)	3,250 (5.3%)	2,794 (4.8%)
Turbine .....	3,822 (2.7%)	3,520 (4.2%)	4,022 (3.1%)	3,541 (4.5%)	4,160 (2.8%)	3,998 (3.8%)	3,749 (3.7%)	3,724 (2.0%)	3,207 (1.5%)
Other—Total.....	6,857 (4.1%)	6,783 (3.4%)	7,010 (3.0%)	6,263 (3.3%)	6,275 (2.7%)	5,923 (3.5%)	5,233 (4.0%)	5,049 (3.5%)	4,945 (2.9%)
Total All Aircraft.....	210,266 (0.5%)	217,183 (0.5%)	220,044 (0.5%)	210,654 (0.6%)	220,943 (0.5%)	213,293 (0.6%)	209,779 (0.6%)	213,226 (0.5%)	211,045 (0.4%)

NOTE: Columns may not add to totals due to rounding and estimation procedures.

TABLE 8.3

ACTIVE GENERAL AVIATION AIRCRAFT TOTAL HOURS FLOWN, BY AIRCRAFT TYPE AND PRIMARY USE: 1988 (Percent Standard Error is Shown in Parenthesis)

Aircraft Type	Total	Executive	Business	Personal	Instructional	Aerial Application	Aerial Observation	Other Work	Commuter Air Carrier	Air Taxi	Other
Fixed-Wing—Total .....	30,273,750 (1.8%)	3,193,274 (4.8%)	4,874,572 (4.4%)	10,434,860 (2.6%)	5,110,213 (7.0%)	1,766,633 (6.1%)	1,018,344 (16.1%)	264,512 (21.1%)	986,625 (16.4%)	2,219,906 (8.6%)	404,819 (12.4%)
Piston—Total .....	26,226,054 (2.0%)	781,039 (11.9%)	4,589,549 (4.5%)	10,412,910 (2.6%)	5,107,276 (7.0%)	1,704,029 (0.2%)	1,013,169 (16.1%)	257,727 (21.4%)	335,914 (28.3%)	1,719,346 (10.1%)	305,098 (14.7%)
One Engine .....	21,946,450 (2.2%)	240,851 (22.3%)	3,205,181 (5.6%)	9,763,187 (2.7%)	4,914,638 (7.2%)	1,630,893 (6.3%)	916,253 (17.6%)	250,457 (22.0%)	67,106 (40.2%)	709,953 (18.0%)	247,938 (17.2%)
Two Engine .....	4,257,404 (4.1%)	540,188 (14.2%)	1,384,369 (7.5%)	649,638 (9.8%)	192,638 (20.8%)	71,985 (35.1%)	96,916 (30.3%)	7,270 (67.4%)	265,294 (33.2%)	992,005 (11.3%)	57,090 (24.9%)
Other Piston .....	22,199 (44.5%)	0 (0.0%)	0 (0.0%)	85 (30.1%)	0 (0.0%)	1,142 (142.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3,513 (209.3%)	17,388 (35.3%)
Turboprop—Total .....	2,369,948 (5.0%)	1,066,279 (19.4%)	194,540 (40.8%)	11,714 (191.7%)	2,748 (26.4%)	62,604 (57.5%)	3,455 (148.2%)	6,785 (148.2%)	647,906 (16.3%)	306,331 (19.5%)	67,587 (28.7%)
Two Engine .....	2,286,078 (5.1%)	1,060,833 (19.9%)	187,315 (54.3%)	9,994 (19.7%)	2,748 (231.4%)	3,220 (55.6%)	3,195 (148.2%)	6,785 (148.2%)	645,575 (16.5%)	306,331 (19.5%)	60,082 (32.1%)
Other Turboprop .....	83,869 (14.9%)	5,446 (107.6%)	1,225 (45.7%)	1,720 (48.5%)	0 (0.0%)	59,384 (18.7%)	260 (314.3%)	0 (0.0%)	2,330 (161.6%)	0 (0.0%)	7,505 (59.7%)
Turbojet—Total .....	1,677,752 (4.4%)	1,345,955 (5.0%)	90,484 (30.2%)	10,237 (37.5%)	189 (105.6%)	0 (0.0%)	0 (92.0%)	1,720 (0.0%)	0 (0.0%)	2,805 (105.7%)	194,228 (19.5%)
Two Engine .....	1,548,225 (4.7%)	1,233,023 (5.4%)	84,936 (32.2%)	10,051 (42.5%)	14 (85.1%)	0 (0.0%)	0 (92.0%)	1,720 (0.0%)	0 (0.0%)	2,805 (105.7%)	193,028 (19.6%)
Other Turbojet .....	129,528 (10.9%)	112,932 (12.2%)	5,548 (72.6%)	186 (90.9%)	175 (152.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1,200 (146.8%)	32,134 (68.3%)
Rotorcraft—Total .....	2,706,719 (6.5%)	551,174 (21.1%)	78,811 (27.8%)	59,084 (20.5%)	136,110 (21.4%)	22,079 (19.6%)	354,965 (22.9%)	140,333 (35.7%)	131,461 (55.0%)	621,811 (21.1%)	22,647 (22.8%)
Piston .....	575,955 (11.6%)	2,813 (59.0%)	20,101 (30.3%)	48,665 (22.9%)	129,129 (21.5%)	94,533 (28.3%)	185,640 (29.0%)	10,164 (66.0%)	1,185 (131.5%)	5,392 (103.3%)	78,343 (43.5%)
Turbine .....	2,130,764 (7.6%)	548,361 (21.3%)	44,870 (44.8%)	10,419 (49.2%)	6,981 (60.0%)	127,556 (66.2%)	169,324 (36.1%)	130,170 (38.3%)	130,277 (57.6%)	616,419 (21.4%)	332,548 (26.1%)
Other—Total .....	612,998 (24.2%)	3,999 (45.6%)	6,747 (59.5%)	319,393 (19.4%)	63,019 (29.2%)	0 (0.0%)	38,417 (51.0%)	161,811 (88.3%)	81 (126.1%)	0 (0.0%)	19,533 (30.7%)
Total All Aircraft... .....	33,593,468 (1.7%)	3,748,447 (5.1%)	4,960,129 (4.3%)	10,813,337 (2.6%)	5,309,342 (6.8%)	1,988,712 (5.9%)	1,411,725 (13.1%)	566,656 (27.2%)	1,118,167 (15.8%)	2,841,717 (8.1%)	835,242 (10.7%)

**TABLE 8.4**  
**ACTIVE GENERAL AVIATION AIRCRAFT TOTAL HOURS FLOWN, BY AIRCRAFT TYPE 1980 - 1988 (Hours in Thousands) (Standard Error is Shown in Parenthesis)**

	1988	1987	1986	1985	1984	1983	1982	1981	1980
Fixed-Wing —Total .....	30,274 (1.8%)	30,744 (1.7%)	31,397 (1.7%)	31,495 (1.7%)	33,265 (2.1%)	32,558 (2.1%)	33,728 (1.9%)	37,628 (1.7%)	38,318 (1.7%)
Piston—Total .....	26,226 (2.0%)	27,039 (1.9%)	26,861 (1.9%)	27,793 (1.9%)	29,194 (1.8%)	28,911 (2.3%)	29,950 (2.2%)	34,086 (1.8%)	34,747 (1.8%)
One Engine.....	21,946 (2.2%)	22,141 (2.0%)	21,939 (2.1%)	22,851 (2.1%)	23,506 (2.1%)	23,149 (2.6%)	24,259 (2.5%)	27,692 (2.1%)	28,339 (2.1%)
Two Engine.....	4,257 (4.1%)	4,883 (5.2%)	4,911 (4.6%)	4,915 (4.1%)	5,585 (3.6%)	5,730 (5.3%)	5,657 (4.7%)	6,369 (3.3%)	6,277 (3.6%)
Other Piston .....	22 (44.5%)	15 (33.3%)	11 (45.5%)	26 (34.6%)	102 (29.4%)	32 (31.2%)	33 (30.3%)	25 (24.0%)	130 (13.8%)
Turboprop—Total .....	2,370 (5.0%)	2,177 (5.0%)	2,882 (5.1%)	2,080 (4.6%)	2,506 (4.7%)	2,173 (7.1%)	2,168 (6.7%)	2,155 (3.8%)	2,240 (3.5%)
Two Engine.....	2,286 (5.1%)	1,994 (5.0%)	2,797 (5.3%)	2,016 (4.8%)	2,452 (4.7%)	2,090 (7.2%)	2,096 (6.8%)	2,092 (3.9%)	2,138 (3.6%)
Other Turboprop .....	84 (14.9%)	183 (24.6%)	85 (14.1%)	64 (10.9%)	54 (25.9%)	83 (37.3%)	71 (28.2%)	63 (17.5%)	56 (17.9%)
Turbojet--Total .....	1,678 (4.4%)	1,528 (3.9%)	1,654 (4.7%)	1,622 (4.4%)	1,566 (4.7%)	1,473 (6.6%)	1,611 (6.8%)	1,387 (3.6%)	1,332 (4.4%)
Two Engine.....	1,548 (4.7%)	1,421 (4.2%)	1,566 (4.9%)	1,461 (4.8%)	1,328 (5.0%)	1,350 (6.8%)	1,247 (7.3%)	1,238 (3.9%)	1,163 (4.5%)
Other Turbojet .....	130 (10.9%)	107 (10.3%)	98 (19.4%)	161 (10.6%)	237 (13.9%)	124 (25.0%)	264 (17.4%)	149 (10.7%)	169 (16.0%)
Rotorcraft—Total .....	2,707 (6.5%)	2,283 (7.4%)	2,625 (6.7%)	2,155 (7.7%)	2,495 (5.5%)	2,271 (7.0%)	2,350 (6.6%)	2,685 (6.9%)	2,338 (5.9%)
Piston .....	576 (11.6%)	652 (9.2%)	804 (12.8%)	564 (15.1%)	592 (11.3%)	572 (8.6%)	579 (10.0%)	930 (11.6%)	736 (10.2%)
Turbine .....	2,131 (7.6%)	1,631 (9.6%)	1,821 (7.7%)	1,590 (8.9%)	1,903 (6.4%)	1,700 (8.9%)	1,771 (8.2%)	1,754 (8.6%)	1,603 (7.2%)
Other—Total .....	613 (24.2%)	416 (6.0%)	394 (7.6%)	14 (8.2%)	358 (6.7%)	420 (11.7%)	379 (10.6%)	391 (8.7%)	359 (5.8%)
Total All Aircraft .....	33,593 (1.7%)	33,443 (1.7%)	34,416 (1.6%)	34,063 (1.6%)	36,119 (1.6%)	35,249 (2.0%)	36,457 (1.9%)	40,704 (1.6%)	41,016 (1.6%)

NOTE: Columns may not add to totals due to rounding and estimation procedures.

**TABLE 8.5**  
**ACTIVE GENERAL AVIATION AIRCRAFT AVERAGE HOURS FLOWN, BY AIRCRAFT TYPE 1980 - 1988 (Standard Error is Shown in Parenthesis)**

	1988	1987	1986	1985	1984	1983	1982	1981	1980
Fixed-Wing —Total .....	148.0 (1.8%)	145.6 (1.7%)	145.1 (1.7%)	155.5 (1.7%)	156.0 (1.7%)	160.9 (2.1%)	170.6 (2.0%)	184.4 (1.7%)	187.7 (1.7%)
Piston—Total .....	138.2 (1.9%)	136.9 (1.8%)	135.4 (1.8%)	147.1 (1.8%)	147.1 (1.8%)	150.6 (2.3%)	159.8 (2.1%)	175.4 (1.8%)	178.2 (1.7%)
One Engine.....	133.4 (2.2%)	129.4 (2.0%)	127.8 (2.0%)	139.5 (2.0%)	137.7 (2.0%)	139.1 (2.5%)	149.1 (2.4%)	165.8 (2.1%)	168.2 (2.0%)
Two Engine.....	181.1 (3.5%)	202.9 (5.1%)	204.4 (4.4%)	207.6 (3.8%)	218.2 (3.2%)	230.5 (5.2%)	230.6 (4.6%)	251.1 (3.1%)	254.8 (3.3%)
Other Piston .....	225.3 (42.2%)	140.2 (22.7%)	111.1 (45.4%)	184.2 (27.0%)	433.4 (24.8%)	240.4 (13.4%)	246.8 (15.9%)	197.0 (1.8%)	625.4 (6.2%)
Turboprop—Total .....	447.9 (4.5%)	388.9 (4.7%)	422.9 (4.5%)	362.0 (4.2%)	414.2 (4.4%)	389.4 (6.3%)	396.3 (6.4%)	470.1 (3.8%)	433.4 (3.7%)
Two Engine.....	450.3 (4.6%)	374.2 (4.7%)	420.6 (4.6%)	360.7 (4.4%)	416.0 (4.5%)	386.3 (6.5%)	394.4 (6.6%)	469.4 (3.9%)	534.8 (3.1%)
Other Turboprop .....	392.0 (16.7%)	839.9 (24.5%)	498.8 (13.8%)	396.5 (6.0%)	339.3 (17.2%)	578.5 (22.7%)	473.0 (17.8%)	498.8 (18.5%)	487.4 (15.0%)
Turbojet—Total .....	405.0 (3.8%)	356.2 (3.6%)	353.8 (4.8%)	368.7 (4.0%)	353.6 (4.0%)	382.2 (5.9%)	404.0 (6.2%)	436.3 (2.9%)	443.6 (3.7%)
Two Engine.....	412.0 (4.1%)	371.5 (3.8%)	385.0 (4.8%)	374.6 (4.4%)	348.6 (4.1%)	391.6 (6.2%)	407.0 (6.8%)	422.6 (3.2%)	456.1 (4.0%)
Other Turbojet .....	346.5 (10.4%)	229.2 (9.6%)	153.8 (28.0%)	325.1 (5.8%)	392.6 (14.7%)	273.7 (14.7%)	385.3 (13.5%)	376.5 (6.0%)	349.9 (8.3%)
Rotorcraft—Total .....	423.3 (6.2%)	359.3 (7.0%)	380.2 (6.3%)	336.1 (6.8%)	343.6 (5.4%)	350.2 (6.3%)	383.2 (5.7%)	390.8 (6.7%)	382.4 (5.4%)
Piston .....	227.9 (9.0%)	228.9 (7.8%)	273.2 (11.1%)	191.6 (12.8%)	186.8 (9.7%)	221.1 (6.8%)	236.8 (8.0%)	285.3 (10.3%)	262.9 (7.9%)
Turbine .....	576.7 (7.6%)	485.4 (9.5%)	459.4 (7.6%)	460.3 (8.0%)	468.7 (6.4%)	431.6 (8.0%)	474.2 (7.1%)	489.5 (8.7%)	497.7 (7.1%)
Other—Total .....	95.2 (25.1%)	62.0 (5.5%)	56.2 (7.5%)	67.1 (7.6%)	56.5 (6.4%)	71.1 (11.3%)	72.4 (9.9%)	78.4 (8.0%)	75.0 (5.2%)
Total All Aircraft.....	153.6 (1.7%)	148.4 (1.6%)	148.9 (1.6%)	158.2 (1.6%)	158.1 (1.6%)	164.0 (2.0%)	174.0 (3.3%)	188.1 (3.1%)	190.5 (3.0%)

NOTE: Columns may not add to totals due to rounding and estimation procedures.

**TABLE 8.6**  
**ACTIVE GENERAL AVIATION AIRCRAFT AND HOURS FLOWN BY FAA REGION AND STATE OF BASED  
 AIRCRAFT 1988**

FAA Region & State	Active Aircraft		Hours Flown	
	Aircraft	Standard Error	Hours (000)	Standard Error
Total .....	210,266	0.5%	33,593	1.7%
Alaskan Region—Total.....	6,309	7.3%	986	9.4%
Central—Total.....	12,150	5.9%	1,985	9.1%
Iowa.....	2,615	13.0%	368	19.8%
Kansas.....	3,500	11.1%	760	18.7%
Missouri.....	4,068	10.3%	602	12.1%
Nebraska.....	1,967	15.0%	255	18.4%
Eastern—Total.....	23,927	4.0%	3,848	5.2%
Delaware .....	1,112	19.4%	165	25.7%
District of Columbia.....	35	102.9%	11	118.4%
Maryland.....	3,032	12.1%	452	15.1%
New Jersey.....	3,755	10.8%	608	12.1%
New York.....	5,804	8.6%	1,024	10.2%
Pennsylvania .....	5,808	8.6%	881	10.4%
Virginia.....	3,291	11.5%	551	14.8%
West Virginia.....	1,091	20.6%	158	26.9%
Great Lakes—Total.....	37,435	3.1%	5,327	4.3%
Illinois.....	7,276	7.7%	997	9.0%
Indiana.....	4,229	10.2%	562	11.8%
Michigan.....	6,771	8.1%	937	11.1%
Minnesota.....	5,040	9.3%	614	13.1%
North Dakota.....	1,487	17.4%	168	21.5%
Ohio .....	7,388	7.6%	1,278	8.9%
South Dakota.....	1,192	19.6%	142	29.6%
Wisconsin .....	4,053	10.3%	629	13.3%
New England—Total.....	9,600	6.7%	1,405	9.5%
Connecticut .....	2,231	14.4%	353	18.0%
Maine .....	1,307	18.1%	203	29.3%
Massachusetts.....	3,687	11.2%	550	15.5%
New Hampshire.....	1,270	18.0%	140	23.2%
Rhode Island.....	486	31.3%	100	38.0%
Vermont .....	619	26.8%	59	32.3%
Northwest Mountain—Total.....	19,914	4.5%	2,906	6.3%
Colorado.....	3,782	11.2%	661	13.6%
Idaho.....	1,836	15.5%	254	20.9%
Montana.....	1,808	15.8%	198	20.5%
Oregon.....	4,126	10.3%	614	13.1%
Utah .....	1,246	19.1%	247	24.6%
Washington .....	6,281	8.3%	828	11.6%
Wyoming.....	835	23.1%	104	32.5%

**TABLE 8.6—Continued**  
**ACTIVE GENERAL AVIATION AIRCRAFT AND HOURS FLOWN BY FAA REGION AND STATE OF BASED  
 AIRCRAFT 1988**

FAA Region & State	Active Aircraft		Hours Flown	
	Aircraft	Standard Error	Hours (000)	Standard Error
Southern—Total.....	34,630	3.3%	6,001	4.3%
Alabama.....	2,539	13.2%	411	16.5%
Florida.....	13,831	5.5%	2,468	6.7%
Georgia.....	4,974	9.3%	755	11.7%
Kentucky.....	1,740	15.7%	307	17.5%
Mississippi.....	1,897	14.9%	490	17.6%
North Carolina.....	4,688	9.8%	719	12.4%
Puerto Rico.....	72	76.4%	9	107.5%
South Carolina.....	1,988	15.2%	314	19.1%
Tennessee.....	2,900	12.4%	508	14.6%
Southwest—Total....	29,506	3.6%	5,217	4.8%
Arkansas.....	2,354	13.4%	431	16.6%
Louisiana.....	3,250	11.4%	973	13.0%
New Mexico.....	2,224	14.4%	367	21.1%
Oklahoma.....	4,254	10.2%	676	12.5%
Texas.....	17,424	4.8%	2,771	6.1%
Western-Pacific—Total.....	36,794	3.1%	5,678	4.4%
Arizona.....	5,118	9.1%	827	12.1%
California.....	28,910	3.6%	4,175	4.3%
Hawaii.....	600	25.5%	426	31.3%
Nevada.....	2,074	14.4%	250	24.6%
Other U. S. Territories.....	92	68.5%	19	75.3%

NOTE: Column totals may differ from printed totals due to estimation procedures.

## **IX. AIRCRAFT ACCIDENTS**

The data presented in this chapter were obtain from the National Transportation Safety Board.

The Safety Board's statistics categorize aviation accidents according to the Federal Air Regulations under which the accident flights were made. The groupings are:

- Large airlines in scheduled service under Part 121 of the regulations
- Commuter carriers in scheduled service under Part 135
- "On-demand" air taxis in unscheduled operations under Part 135, and
- General aviation—all other civil flying.

See Glossary under "Aircraft Accident" for NTSB definitions for the following terms: "Fatal Injury", "Operator", "Serious Injury", and "Substantial Damage".

More detailed accident data may be obtained from the National Transportation Safety Board.

**TABLE 9.1**  
**AIR CARRIER AND GENERAL AVIATION AIRCRAFT ACCIDENTS AND FATALITIES (Preliminary Data) 1988**

Air Carrier and General Aviation Operations	Number of Accidents		Number of Fatalities
	Total	Total	
<b>Air Carriers</b>			
Air Carriers Operating under 14 CFR 121 <sup>1</sup>			
Scheduled .....	29	3	285
Nonscheduled.....	1	0	0
Air Carriers Operating under 14 CFR 135			
Scheduled <sup>2</sup> .....	20	2	21
Nonscheduled <sup>3</sup> .....	97	28	57
General Aviation <sup>4</sup> .....	2,332	438	782

<sup>1</sup> Airlines.

<sup>2</sup> Commuters.

<sup>3</sup> On-Demand Air Taxis.

<sup>4</sup> Includes accidents involving aircraft flown under rules other than 14 CFR 121 and CFR 135.

Source: National Transportation Safety Board.

**TABLE 9.2**  
**AIRLINES (Air Carriers Operating Under 14 CFR 121) ACCIDENTS, FATALITIES, AND RATES**  
**(Preliminary Data) 1988**

	Scheduled	Non-scheduled
<b>Accidents</b>		
Total .....	29	1
Fatal.....	3	0
Fatalities .....	285	0
Aircraft Hours Flown (000) <sup>1</sup> .....	10,199	535
Departures (000) <sup>1</sup> .....	7,200	289
Accident Rate Per 100,000		
Hours Flown		
Total.....	0.28	0.19
Fatal.....	0.02	0.00
Accident Rate Per 100,000		
Departures		
Total.....	0.39	0.35
Fatal.....	0.03	0.00

<sup>1</sup> Exposure data estimate source: Research and Special Programs Administration and FAA.

Source: National Transportation Safety Board.

**TABLE 9.3**  
**AIRLINES (Air Carriers Operating under 14 CFR 121) FATAL ACCIDENTS, FATALITIES (Preliminary Data) 1988**

Location	Operator	Date	Service	Aircraft	Total	Fatalities			Total Aboard	Reported Type of Accident
						Passenger	Crew	Others		
<b>SCHEDULED SERVICE</b>										
Total .....		4/28	Psgtr	B-737	285	256	18	11	462	Portion of top of fuselage tore away in flight.
Maui, HI.....	Aloha Airlines				1	0	1	0	95	
Dallas, TX.....	Delta Airlines	8/31	Psgtr	B-727	14	12	2	0	108	Crashed shortly after take-off.
Lockerbie, Scotland .....	Pan American	12/21	Psgtr	B-747	270	244	15	11	259	Suspected sabotage.
<b>NONSCHEDULED SERVICE</b>										
Total .....	None .....	0	0	0	0					

Source: National Transportation Safety Board.

TABLE 9.4

AIRLINES. SCHEDULED AND NONSCHEDULED SERVICE \*ACCIDENTS, FATALITIES AND RATES (U.S. Air Carriers Operating Under 14 CFR 121) 1979 - 1988

	1979	1980	1981	1982	1983	1984	1985	1986	1987 <sup>r</sup>	1988 <sup>p</sup>
<b>Accidents</b>										
Total.....	29	19	26	19	24	16	22	23	38	30
Fatal.....	5	1	4	4	4	1	7	2	5	3
<b>Total Fatalities.....</b>	<b>354</b>	<b>1</b>	<b>4</b>	<b>234</b>	<b>15</b>	<b>4</b>	<b>526</b>	<b>4</b>	<b>232</b>	<b>285</b>
<b>Aircraft Hours Flown (000)<sup>1</sup> .....</b>	<b>6,879</b>	<b>7,380</b>	<b>7,126</b>	<b>7,040</b>	<b>7,299</b>	<b>8,165</b>	<b>8,710</b>	<b>9,924</b>	<b>10,500</b>	<b>10,734</b>
<b>Aircraft Miles Flown (000,000)<sup>1</sup> .....</b>	<b>2,859</b>	<b>3,044</b>	<b>2,921</b>	<b>2,939</b>	<b>3,069</b>	<b>3,428</b>	<b>3,631</b>	<b>4,056</b>	<b>4,372</b>	<b>4,404</b>
<b>Departures (000)<sup>1</sup> .....</b>	<b>5,486</b>	<b>5,729</b>	<b>5,575</b>	<b>5,351</b>	<b>5,444</b>	<b>5,899</b>	<b>6,307</b>	<b>7,243</b>	<b>7,449</b>	<b>7,489</b>
<b>Accident Rate Per 100,000 Hours Flown</b>										
Total.....	0.42	0.26	0.36	0.27	0.33	0.20	0.25	0.23	0.35	0.27
Fatal.....	0.07	0.01	0.06	0.06	0.06	0.01	0.08	0.02	0.04	0.02
<b>Accident Rate Per Million Miles Flown</b>										
Total.....	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Fatal.....	0.00 <sup>2</sup>									
<b>Accident Rate Per 100,000 Departures</b>										
Total.....	0.53	0.33	0.47	0.36	0.44	0.27	0.35	0.32	0.50	0.39
Fatal.....	0.09	0.02	0.07	0.08	0.07	0.02	0.11	0.03	0.05	0.03

\* Includes accidents involving deregulated all-cargo air carriers and commercial operators of large aircraft when those accidents occurred during scheduled 14 CFR 121 operations.

Source: National Transportation Safety Board

<sup>1</sup> Exposure data estimate source: Research and Special Programs Administration.

<sup>2</sup> Rounds to 0.00.

<sup>r</sup> Revised.

<sup>p</sup> Preliminary.

NOTE: The following suicide/sabotage cases are included in "Accidents" and "Fatalities" but not in "Accident Rates":

Date	Location	Operator	Total	Aboard
8/11/82	Honolulu, HI	Pan American	1	1
4/02/86	Near Athens, Greece	Trans World	4	4
12/07/87	San Luis, Obispo, CA	Pacific Southwest	43	43
12/21/88	Lockerbie, Scotland	Pan American	270	259

TABLE 9.5

AIRLINES. SCHEDULED SERVICE \* ACCIDENTS, FATALITIES AND RATES (U.S. Air Carriers Operating Under 14 CFR 121) 1979 - 1988

	1979	1980	1981	1982	1983	1984	1985	1986	1987 *	1988 **
Accidents										
Total.....	23	15	25	16 *	22	13 *	17	21 *	33	29
Fatal.....	4	0	4	4 *	4	1	4	2 *	4	3
Total Fatalities.....	351	0	4	234 *	15	4	197	5 *	231	285
Aircraft Hours Flown (000) <sup>1</sup> .....	6,713	7,069 *	6,834 *	6,698 *	6,915 *	7,736 *	8,265 *	9,452 *	10,009	10,199
Aircraft Miles Flown (000,000) <sup>1</sup> .....	2,791	2,929 *	2,811 *	2,807 *	2,921 *	3,259 *	3,453 *	3,869 *	4,149	4,169
Departures (000) <sup>1</sup> .....	5,400	5,567 *	5,420 *	5,162 *	5,235 *	5,666 *	6,069 *	6,974 *	7,170	7,200
Accident Rate Per 100,000 Hours Flown										
Total.....	0.34	0.21 *	0.37 *	0.22 *	0.31 *	0.17 *	0.21	0.21	0.32	0.28
Fatal.....	0.06	0.00	0.06	0.04	0.06	0.01	0.05	0.01	0.03	0.02
Accident Rate Per Million Miles Flown										
Total.....	0.01	0.01	0.01	0.01	0.01	0.00 <sup>2</sup>	0.01	0.01	0.01	0.01
Fatal.....	0.00 <sup>2</sup>	0.00	0.00 <sup>2</sup>	0.00 <sup>2</sup>	0.00 <sup>2</sup>	0.00	0.00 <sup>2</sup>	0.00 <sup>2</sup>	0.00 <sup>2</sup>	0.00 <sup>2</sup>
Accident Rate Per 100,000 Departures										
Total.....	0.43	0.27 *	0.46 *	0.29 *	0.42 *	0.23 *	0.28 *	0.29 *	0.45	0.39
Fatal.....	0.07	0.00	0.07 *	0.06	0.08	0.02	0.07	0.01 *	0.04	0.03

\* Includes accidents involving deregulated all-cargo air carriers and commercial operators of large aircraft when those accidents occurred during scheduled 14 CFR 121 operations.

Source: National Transportation Safety Board

<sup>1</sup> Exposure data estimate source: Research and Special Programs Administration.

<sup>2</sup> Rounds to 0.00.

<sup>\*</sup> Revised.

<sup>\*\*</sup> Preliminary.

NOTE: The following suicide/sabotage cases are included in "Accidents" and "Fatalities" but not in "Accident Rates".

Date	Location	Operator	Total	Aboard
8/11/82	Honolulu, HI	Pan American	1	1
4/02/86	Near Athens, Greece	Trans World	4	4
12/07/87	San Luis, Obispo, CA	Pacific Southwest	43	43
12/21/88	Lockerbie, Scotland	Pan American	270	259

**TABLE 9.6**  
**AIRLINES. NONSCHEDULED SERVICE\* ACCIDENTS, FATALITIES AND RATES (U.S. Air Carriers Operating Under 14 CFR 121) 1979 - 1988**

	1979	1980	1981	1982	1983	1984	1985	1986	1987 <sup>c</sup>	1988 <sup>d</sup>
<b>Accidents</b>										
Total.....	6	4	1	4	2	4	5	3	5	1
Fatal.....	1	1	0	1	0	0	3	1	1	0
<b>Total Fatalities.....</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>329</b>	<b>3</b>	<b>1</b>	<b>0</b>
<b>Aircraft Hours Flown (000)<sup>1</sup>.....</b>	<b>166</b>	<b>310</b>	<b>292</b>	<b>343</b>	<b>384</b>	<b>429</b>	<b>445</b>	<b>473</b>	<b>491</b>	<b>535</b>
<b>Aircraft Miles Flown (000,000)<sup>1</sup>.....</b>	<b>68</b>	<b>115</b>	<b>109</b>	<b>132</b>	<b>148</b>	<b>169</b>	<b>178</b>	<b>187</b>	<b>223</b>	<b>236</b>
<b>Departures (000)<sup>1</sup>.....</b>	<b>87</b>	<b>162</b>	<b>155</b>	<b>189</b>	<b>209</b>	<b>233</b>	<b>238</b>	<b>269</b>	<b>280</b>	<b>289</b>
<b>Accident Rate Per 100,000 Hours Flown</b>										
Total.....	3.62	1.29	0.34	1.17	0.52	0.93	1.12	0.64	1.02	0.19
Fatal.....	0.60	0.32	0.00	0.29	0.00	0.00	0.68	0.21	0.20	0.00
<b>Accident Rate Per Million Miles Flown</b>										
Total.....	0.09	0.04	0.01	0.03	0.01	0.02	0.03	0.02	0.02	0.00 <sup>2</sup>
Fatal.....	0.02	0.01	0.00	0.01	0.00	0.00	0.02	0.00 <sup>2</sup>	0.00 <sup>2</sup>	0.00
<b>Accident Rate Per 100,000 Departures</b>										
Total.....	6.93	2.46	0.65	2.12	0.96	1.72	2.10	1.12	1.79	0.35
Fatal.....	1.16	0.62	0.00	0.53	0.00	0.00	1.26	0.37	0.36	0.00

\* Includes accidents involving deregulated all-cargo air carriers and commercial operators of large aircraft when those accidents occurred during nonscheduled 14 CFR 121 operations.

Source: National Transportation Safety Board

<sup>1</sup> Exposure data estimate source: Research and Special Programs Administration.

<sup>2</sup> Rounds to 0.00.

<sup>c</sup> Revised.

<sup>d</sup> Preliminary.

**TABLE 9.7**  
**COMMUTER AIR CARRIERS (Air Carriers Operating Under 14 CFR 135) FATAL ACCIDENTS, FATALITIES (Preliminary Data) 1988**

Location	Operator	Date	Service	Aircraft	Fatalities				Total Aboard	Reported Type of Accident
					Total	Passenger	Crew	Others		
Total .....					21	17	4	0	29	
Bayfield, CO.....	Trans Colorado	<sup>1</sup> 19	Psgt	SA-227	9	7	2	0	17	Crashed during an instrument approach.
Cary, NC.....	American Eagle	<sup>2</sup> 19	Psgt	SA-227	12	10	2	0	12	Crashed shortly after takeoff.

Source: National Transportation Safety Board

TABLE 9.8

COMMUTER AIR CARRIERS (U.S. Air Carriers Operating Under 14 CFR 135)\* AIRCRAFT ACCIDENTS, FATALITIES AND RATES 1979 - 1988

	1979	1980	1981	1982	1983	1984	1985	1986	1987 <sup>r</sup>	1988 <sup>p</sup>
<b>Accidents</b>										
Total.....	52	38	31	26	17 <sup>r</sup>	22	21	15	34	20
Fatal.....	15	8	9	5	2	7	7	2	12	2
<b>Fatalities</b> .....	66	37	34	14	11	48	37	4	61	21
<b>Aircraft Hours</b>										
F <sup>t</sup> vn (000) <sup>1</sup> .....	1,170	1,176	1,241	1,300	1,511	1,746	1,737	1,738 <sup>r</sup>	1,954	2,018
<b>Aircraft Miles</b>										
Flown (000,000) <sup>1</sup> .....	192	192	193	222	254	291	301	321 <sup>r</sup>	351	363
<b>Departures (000)<sup>1</sup></b> .....	1,884	1,777	1,835	2,027	2,328	2,677	2,561	2,663 <sup>r</sup>	2,719	2,800
<b>Accident Rate Per</b>										
100,000 Hours Flown <sup>2</sup> .....										
Total.....	4.44	3.23	2.50	2.00	1.12 <sup>r</sup>	1.26	1.21	0.86 <sup>r</sup>	1.74	0.99
Fatal.....	1.28	0.68	0.72	0.38	0.13	0.40	0.40	0.11 <sup>r</sup>	0.61	0.10
<b>Accident Rate Per</b>										
Million Miles Flown <sup>2</sup> .....										
Total.....	0.27	0.20	0.16	0.12	0.07	0.08	0.07	0.05 <sup>r</sup>	0.10	0.06
Fatal.....	0.08	0.04	0.05	0.02	0.01	0.02	0.02	0.01 <sup>r</sup>	0.03	0.01
<b>Accident Rate Per</b>										
100,000 Departures <sup>2</sup> .....										
Total.....	2.76	2.14	1.69	1.28	0.73 <sup>r</sup>	0.82	0.82	0.56 <sup>r</sup>	1.25	0.71
Fatal.....	0.80	0.45	0.49	0.25	0.09	0.26	0.27	0.08	0.44	0.07

\* Includes accidents involving all-cargo air carriers when those accidents occurred during scheduled 14 CFR 135 operations. All-cargo air carriers no longer meet the RSPA definition for "Commuters". May also include accidents involving carriers whose FAA operating specifications permit scheduled revenue operations under 14 CFR 135, but who have not received a RSPA fitness determination.

Source: National Transportation Safety Board.

<sup>1</sup> Exposure data estimates from Research and Special Programs Administration (RSPA).

<sup>2</sup> Rates are based on all accidents including some involving operators not reporting traffic data to the RSPA.

<sup>p</sup> Preliminary.

<sup>r</sup> Revised.

TABLE 9.9

ON-DEMAND AIR TAXIS (U.S. Air Carriers Operating Under 14 CFR 135) \* AIRCRAFT ACCIDENTS,  
FATALITIES AND RATES 1979 - 1988

Year	Number of Accidents		Total Fatalities	Aircraft Hours Flown <sup>1</sup> (000)	Accident Rate Per 100,000 Aircraft Hours	
	Total	Fatal			Total Accidents	Fatal Accidents
1979.....	160	30	77	3,684	4.34	0.81
1980.....	171	46	105	3,618	4.73	1.27
1981.....	157	40	94	2,896	5.42	1.38
1982.....	132	31	72	3,257	4.05	0.95
1983.....	141 <sup>r</sup>	27	62	2,575	5.48 <sup>r</sup>	1.05
1984.....	146	23	52	3,079	4.74	0.75
1985.....	152	35	76	2,783	5.46	1.26
1986.....	116 <sup>r</sup>	31 <sup>r</sup>	65 <sup>r</sup>	2,913	3.98 <sup>r</sup>	1.06 <sup>r</sup>
1987 <sup>P</sup> .....	99	29	64	2,877	3.44	1.01
1988 <sup>P</sup> .....	97	28	57	2,890	3.36	0.97

Source: National Transportation Safety Board.

<sup>1</sup> Exposure data estimate from FAA.

<sup>P</sup> Preliminary.

<sup>r</sup> Revised.

TABLE 9.10

U.S. GENERAL AVIATION FLYING (All Operations Other Than Those Operating Under 14 CFR 121 or 14 CFR 135) AIRCRAFT ACCIDENTS, FATALITIES, AND RATES 1979 - 1988

Year	Accidents		Total Fatalities	Aircraft Hours Flown (000) <sup>1</sup>	Accident Rate Per 100,000 Aircraft Hours <sup>a</sup>	
	Total	Fatal			Total	Fatal
1979.....	3,818	631	1,221	38,641	9.88	1.63
1980.....	3,590	618	1,239	36,402	9.86	1.69
1981.....	3,500	654	1,282	36,803	9.51	1.78
1982.....	3,233	591	1,187	32,095	10.06	1.84
1983.....	3,07 <sup>c</sup>	555	1,064	31,048	9.90	1.79
1984.....	3,01 <sup>u</sup>	543	1,039	31,510	9.54	1.72
1985.....	2,741	498	950	30,590	8.95	1.62
1986.....	2,581	471 <sup>r</sup>	961 <sup>r</sup>	29,317	8.80	1.61 <sup>r</sup>
1987 <sup>P</sup> .....	2,471	435	830	29,208	8.46	1.49
1988 <sup>P</sup> .....	2,332	438	782	29,350	7.95	1.49

<sup>a</sup> Suicide/sabotage accidents are excluded from rates.

<sup>P</sup> Preliminary.

<sup>r</sup> Revised.

Source: National Transportation Safety Board

<sup>1</sup> Exposure data estimate from FAA.

## **X. AERONAUTICAL PRODUCTION AND IMPORTS/EXPORTS**

The aircraft production information presented in this chapter was obtained from the Bureau of Census: Complete Aircraft Plant Report (Form M37G). The shipment data shows the number of civil aircraft shipped by the United States manufacturers and includes both aircraft shipped within the United States and those exported.

Import and export data were obtained from the Aerospace Industries Association of America, Inc. and were based on Bureau of the Census data from special monthly compilation of Annual Reports 246 and 446, respectively.

**TABLE 10.1**  
**TOTAL CIVIL AIRCRAFT PRODUCTION, WEIGHT, AND COST CALENDAR YEARS 1979 - 1988**

Calendar Year	Number of Aircraft	Airframe Weight (000 lbs.)	Value Complete Aircraft (\$000)	Average Complete Aircraft Cost
1979.....	17,924	77,327	\$11,047,147	\$616,333
1980.....	11,777	97,068	13,043,076	1,107,504
1981.....	10,114	89,076	13,195,029	1,304,630
1982.....	4,053	44,383	8,639,782	2,131,700
1983.....	2,784	44,936	9,915,761	3,561,696
1984.....	2,635	33,450	7,911,543	3,002,483
1985.....	2,457	40,872	10,939,831	4,452,516
1986.....	2,888	NA	12,517,992	4,334,485
1987 <sup>R</sup> .....	2,319	NA	12,491,743	5,386,394
1988 <sup>P</sup> .....	2,681	NA	16,019,855	5,975,328

<sup>P</sup> Preliminary.

<sup>R</sup> Revised.

NA No longer available

Source: U.S. Department of Commerce, Bureau of the Census, Industry Division.

**TABLE 10.2**  
**NUMBER OF SHIPMENTS OF COMPLETE CIVIL AIRCRAFT 1979 - 1988**

Item	1988 <sup>P</sup>	1987 <sup>R</sup>	1986	1985	1984	1983	1982	1981	1980	1979
Total .....	2,681	2,319	2,888	2,842	3,028	3,217	4,669	11,067	13,130	17,924
Fixed Wing .....	1,734	1,516	1,858	2,457	2,635	2,784	4,055	10,114	11,777	16,883
Single Engine.....	NA	NA	NA	1,551	1,578	1,697	2,546	6,825	8,175	13,044
Multiengine .....	NA	NA	NA	906	1,057	1,087	1,509	3,289	3,602	3,839
Rotorcraft .....	517	360	493	385	393	433	614	953	1,353	1,041
Other .....	430	443	537	NA	NA	NA	NA	NA	NA	NA

NOTE: Other includes balloons, dirigibles, airships, gliders, sailplanes, and aircraft sold in kits (except hang gliders).

<sup>R</sup> Revised.

<sup>P</sup> Preliminary Data

NA Not available

Source: "Current Industrial Reports: Complete Aircraft and Aircraft Engines," M37G-13; Department of Commerce, Bureau of the Census.

**TABLE 10.3**  
NUMBER OF U.S. IMPORTS OF AEROSPACE PRODUCTS 1979 - 1988

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979
Aircraft Used or Rebuilt, Civil .....	194	115	141	246	223	181	186	160	100	97
Helicopters, Civil .....	114	98	87	60	61	100	184	213	177	91
Aircraft, Single-Engine, Civil .....	40	41	71	46	21	6	23	9	6	3
Aircraft, Multiengine Under 4,400 lbs., Civil .....	3	1	18	8	33	18	13	2	6	5
Aircraft, Multiengine, 4,400 to 10,000 lbs., Civil .....	74	101	58	46	58	52	87	123	119	86
Aircraft, Multiengine, 10,000 to 33,000 lbs., Civil .....	152	155	150	103	95	93	159	218	156	102
Aircraft, Multiengine, Over 33,000 lbs., Civil .....	18	22	36	29	12	7	8	8	16	9
Balloons, and Airships, Civil .....	0	0	0	0	0	0	0	0	0	0
Gliders, Civil .....	111	117	181	628	448	229	200	119	73	-

Source: Aerospace Industries Association, Inc. based on Bureau of Census data from special monthly compilation of Annual Report, FT-410.

**TABLE 10.4**  
NUMBER OF U.S. EXPORTS OF AEROSPACE PRODUCTS 1979 - 1988

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979
Aircraft Used or Rebuilt, Civil .....	1,644	969	494	277	304	224	242	501	494	578
Aircraft Helicopter, New, Under 2200 lbs., Civil .....	161	129	104	68	155	141	162	268	335	294
Aircraft, Helicopter, New, Over 2200 lbs., Civil .....	119	152	106	69	78	75	92	185	190	165
Aircraft, Single-Engine New Civil .....	459	307	220	334	271	279	539	1,800	2,172	2,821
Aircraft, Multiengine, New, Under 4400 lbs., Civil .....	51	51	63	66	53	106	167	371	546	645
Aircraft, Multiengine, New, Over 4400 lbs., Under 10,000 lbs., Civil .....	109	127	93	65	83	112	209	426	432	360
Aircraft, Multiengine, New, Over 10,000 lbs., Under 33,000 lbs., Civil .....	24	24	38	19	18	22	25	20	28	52
Aircraft, Passenger, New, Over 33,000 lbs., Civil .....	205	160	149	140	77	122	110	236	215	172
Aircraft, Cargo, New, Over 33,000 lbs., Civil .....	8	4	2	6	3	2	6	7	8	13
Aircraft Other, New, Over 33,000 lbs., Including Combinations, Civil .....	4	6	8	6	3	5	5	12	14	15
Aircraft Other, New, Including Balloons, Gliders & Kites, Civil .....	0	0	0	0	0	0	0	0	0	0

Source: Aerospace Industries Association, Inc. based on Bureau of Census data from special monthly compilation of Annual Report, FT-446.

## COMMON ACRONYMS

AAS.....	Airport Advisory Service
ADF.....	Automatic Direction Finder
ARSR.....	Air Route Surveillance Radar
ARTCC.....	Air Route Traffic Control Center
ASR.....	Airport Surveillance Radar
ATC.....	Air Traffic Control
ATCT.....	Airport Traffic Control Tower
CAB.....	Civil Aeronautics Board
DME.....	Distance Measuring Equipment
DVFR.....	Defense Visual Flight Rules
FAA.....	Federal Aviation Administration
FAR.....	Federal Aviation Regulation
FSS.....	Flight Service Station
ICAO.....	International Civil Aviation Organization (Montreal, Canada)
IFR.....	Instrument Flight Rules
IFSS.....	International Flight Service Station
ILS.....	Instrument Landing System
LDA.....	Landing Directional Aid
LRNAV.....	Long Range Navigation
MLS.....	Microwave Landing System
NAS.....	National Airspace System
NAVAIDS.....	Navigation Aids
NOTAMS.....	Notice to Airmen
NTSB.....	National Transportation Safety Board
RNAV.....	Area Navigation
RSPA.....	Research and Special Programs Administration
VFR.....	Visual Flight Rules
VHR.....	Very High Frequency
VOR/VORTAC.....	Very High Frequency Omnidirectional Radio Range

## GLOSSARY

**Active Aircraft**—All legally registered civil aircraft which flew one or more hours.

**Aerial Application**—See Primary Use.

**Aerial Observation**—See Primary Use.

**Air Carriers**—The commercial system of air transportation consisting of the certificated air carriers, air taxis (including commuters), supplemental air carriers, commercial operators of large aircraft, and air travel clubs.

**Certificated air carrier**—An air carrier holding a Certificate of Public Convenience and Necessity issued by DOT to conduct scheduled services interstate. Nonscheduled or charter operations may also be conducted by these carriers. These carriers operate large aircraft (30 seats or more or a maximum payload capacity of 7,500 pounds or more) in accordance with FAR Part 12.

**Air taxi**—A classification of air carriers which transport in accordance with FAR part 135 persons, property, and mail using small aircraft (under 30 seats or a maximum payload capacity of less than 7,500 pounds).

**Commuter air carrier**—an air taxi operator which performs at least five round trips per week between two or more points and publishes flight schedules which specify the times, days of the week, and points between which such flights are performed.

**Supplemental air carrier (Charter)**—An air carrier which holds Certificates of Public Convenience and Necessity issued by the DOT, authorizing performance of passenger and cargo interstate charter services supplementing the scheduled service of the certificated air carriers. The authority of supplemental air carriers to engage in military charters is of an indefinite period. In addition, they can perform on an emergency basis, as may be authorized by the DOT, scheduled operations including the transportation of individually ticketed passengers and individually waybilled cargo.

**Commercial operator**—a person who for compensation or hire engages in the intrastate carriage of aircraft in air commerce of persons or property other than as an air carrier or foreign air carrier.

**Commercial operator of large aircraft**—commercial operator operating aircraft with 30 seats or more or a maximum payload capacity of 7,500 pounds or more.

**Air Travel Club**—a person who engages in the carriage by airplanes of persons who are required to qualify for that carriage by payment of an assessment, dues, membership fee, or other similar types of remittance.

**Air Accident**—As defined by the National Transportation Safety Board, it is “an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, and in which any person suffers death or serious injury as a result of being in or upon the aircraft or by direct contract with the aircraft or anything attached thereto, or in which the aircraft receives substantial damage.”

**Fatal Injury** means any injury which results in death within 7 days of the accident.

**Operator** means any person who causes or authorizes the operation of an aircraft, such as the owner, lessee, or bailee of an aircraft.

**Serious Injury** means any injury which (1) requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received; (2) results in a fracture of any bone (except simple fractures of fingers, toes, or nose); (3) involves lacerations which cause severe hemorrhages, nerve, muscle, or tendon damage; (4) involves injury to any internal organ; (5) involves second-or third-degree burns, or any burns affecting more than 5 percent of the body surface.

**Substantial damage:**

- (1) Except as provided in subparagraph (2) of this paragraph, substantial damage means damage or structural failure which adversely affects the structural strength, performance, or flight characteristics of the aircraft, and which would normally require major repair or replacement of the affected component.
- (2) Engine failure, damage limited to an engine, bent fairings or cowling, dented skin, small puncture holes in the skin or fabric, ground damage to rotor or propeller blades, damage to landing gear, wheels, tires, flaps, engine accessories, brakes or wingtips are not considered substantial for the purpose of this part.

**Aircraft Contact**—Aircraft with which the flight service station (FSS) have established radio communications contact. One count is made for each en route, landing, or departing aircraft contacted by an FSS regardless of the number of contacts made with an individual aircraft during the same flight. A flight contacting five FSS's would be counted as five aircraft contacted.

**Aircraft Handled**—See IFR Aircraft Handled.

**Aircraft Type**—A term used in this publication in grouping aircraft by basic configuration—fixed-wing, rotorcraft, glider, dirigible, and balloon.

**Air Defense Identification Zone**—The area airspace over land or water within which the ready identification, the location, and the control of aircraft are required in the interest of national security.

**Airline Transport Pilot**—See Pilot.

**Airman**—A pilot, mechanic, or other licensed aviation technician.

**Airman Certificates**—A document issued by the Administrator of the Federal Aviation Administration certifying that the holder complies with the regulations governing the capacity in which the certificates authorizes the holder to act as an airman in connection with aircraft.

**Airport**—An area of land or water that is used or intended to be used for the landing and takeoff of aircraft, and includes it buildings and facilities, if any.

**Airport Advisory Service (AAS)**—A service provided by flight service stations at airports not served by a control tower. This service consists of providing information to landing and departing aircraft concerning wind direction and velocity, favored runway, altimeter setting, pertinent known traffic, pertinent known field conditions, airport taxi routes and traffic patterns, and authorized instrument approach procedures.

**Airport Operation**—The airborne movement of aircraft in controlled or noncontrolled airport terminal areas and about given en route fixes or at other points where counts can be made. There are two types of operations—local and itinerant.

Local operations are performed by aircraft which:

- (a) Operate in the local traffic pattern or within sight of the airport.
- (b) Are known to be departing for, or arriving from, flight in local practice areas within a 20-mile radius of the airport.
- (c) Execute simulated instrument approaches or low passes at the airport.

Itinerant Operations are all airport operations other than local operations.

**Airport surveillance Radar**—providing position of aircraft by azimuth and range data. ASR does not provide elevation data. It is designed for range coverage up to 60 nautical miles and is used by terminal area air traffic control.

**Airport Traffic**—Aircraft operating in the air or on an airport surface exclusive of loading ramps and parking areas.

**Airport Traffic Control Service**—Air traffic control service provided by an airport traffic control tower for aircraft operating on the movement area and in the vicinity of an airport.

**Airport Traffic Control Tower (ATCT)**—A central operations facility in the terminal air traffic control system, which consist of a tower cab structure, including an associated IFR room if radar equipped, and uses air/ground communications, radar, visual signaling, and other services to provide safe and expeditious movement of terminal air traffic.

**Airports Grant-in Aid Program**—A grant of funds by the Secretary of Transportation under the Airport & Airway Improvement Act of 1982 to a sponsor for the accomplishment of one or more projects.

- Project**—Projects (or separate projects submitted together) for the accomplishment of airport development or airport planning, including the combined submission of all projects which are to be undertaken at an airport in a fiscal year.
- Sponsor**—Any private owner of a public-use air OR any public agency (either individually or jointly with other public agencies) that submit to the Secretary of Transportation, in accordance with the Airport & Airway Improvement Act of 1982, and application for financial assistance.
- Primary Airports**—A commercial service airport which is determined to have .01 percent or more of the total number of passengers enplaned annually at all commercial service airports.
- Commercial Airports**—(also known as commercial service airports)—A public airport which is determined to enplane annually 2,500 or more passengers and receive scheduled passenger service of aircraft.
- Reliever Airports**—An airport designated as having the function of relieving congestion at a commercial service airport and providing more general aviation access to the overall community.
- General Aviation Airports**—(also known as public airports)—Any airport which is used or to be used for public purposes, under the control of a public agency, the landing area of which is publicly owned.
- System Planning**—(also known as integrated airport system planning)—The initial, as well as continuing development for planning purposes of information and guidance to determine the extent, type, nature, location, and timing of airport development needed in a specific area to establish a viable balanced, and integrated system of public-use airports.

**Airports of Entry**—Aircraft may land at these airports without prior permission to land from U.S. Customs.

**Air Route Traffic Control Center (ARTCC)**—A facility established to provide air traffic control service to aircraft operating on IFR flight plans within controlled airspace, and principally during the en route phase of flight.

**Air Taxi**—See Air Carrier and Primary Use.

**Air Traffic Control (ATC)**—A service operated by appropriate authority to promote the safe, orderly, and expeditious flow of air traffic.

**Air Traffic Control Facility**—A facility which provides air traffic control services located in the U.S., its possessions and territories, and in foreign countries especially established by international agreement.

**Air Traffic Hub**—Air traffic hubs are not airports; they are the cities and Standards Metropolitan Statistical Areas requiring aviation services. Communities fall into four classes as determined by each community's percentage of the total enplaned passengers in scheduled service of the fixed-wing operations of the domestic certificated air carriers in the 50 States, the District of Columbia, and other U.S. areas designated by the Federal Aviation Administration.

**Large air traffic hub**—A community enplaning 1.00 percent or more of the total enplaned passengers.

- Medium air traffic hub**—A community enplaning from 0.25 to 0.99 percent of the total enplaned passengers.
- Small air traffic hub**—A community enplaning from 0.05 to 0.24 percent of the total enplaned passengers.
- Nonhub**—A community enplaning less than 0.05 percent of the total enplaned passengers.

**Air Travel Club**—See Air Carrier.

**All-Cargo Carrier (418)**—One of a class of air carriers holding an All Cargo Air Service Certificate issued under section 418 of the Federal Aviation Act and certificated in accordance with FAR part 121 to provide domestic air transportation of cargo.

**Altitude Encoding**—(Automatic Altitude Reporting)—An aircraft altitude transmitted via the Mode C transponder feature that is visually displayed in 100 feet increments on the ground radar scope having readout capability.

**American Flag Carrier**—See U.S. Flag Carrier.

**Approach Control Facility**—A terminal area traffic control facility providing approach control service.

**Approach Control Service**—Air traffic control service provided by an approach control-facility for arriving and departing aircraft and, on occasion, tower en route control service.

**Area Navigation (RNAV)**—A method of using navigation instruments that allows pilots flexibility to fly direct routes between waypoints or offset from published or established routes/airways at specified distance and direction.

**Automatic Direction Finder (ADF)**—An aircraft radio navigation system which senses and indicate the direction to a non-directional radio beacon ground transmitter. Direction is indicated to the pilot as a magnetic bearing or as a relative bearing to the longitudinal axis of the aircraft.

**Automatic Pilot**—An aircraft can be controlled about the roll, pitch, and yaw axis by use of an automatic pilot. Information from OVR, ILS, MLS, and other navigation aids can be coupled to the automatic pilot for en route and approach flights.

**Business Transportation**—See Primary Use.

**Carrier Group**—A grouping of certificated air carriers determined by annual operating revenues as shown below:

Carrier Group	Annual Operating Revenues
Majors	over one billion dollars
Nationals	-100 million to one billion dollars
Large regionals	10 to 100 million dollars
Medium regionals	up to 10 million dollars or that operate aircraft with 60 or less seats or maximum payload capacity of 18,000 lbs.

**Certificate of Public Convenience and Necessity**—A certificate issued to an air carrier under Section 401 of the Federal Aviation Act by Department of Transportation (DOT) authorizing the carrier to engage in air transportation.

**Certificated Route Air Carrier**—See Air Carrier.

**Commercial Operator**—See Air Carrier.

**Commercial Pilot**—See Pilot.

**Commuter Air Carrier**—See Air Carrier.

**Controlled Airspace**—Airspace control area designated as a continental control area, control zone, terminal control areas, or transition area, within which some or all aircraft may be subject to air traffic control.

**Defense Visual Flight Rules (DVFR)**—A flight within an Air Defense Identification Zone conducted under the visual flight rules in Federal Aviation Regulation, Part 99.

**Distance Measuring Equipment (DME)**—Airborne and ground equipment used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.

**Domestic Operation**—In general, operations within and between the 50 States, and the District of Columbia.

**Executive Transportation**—See Primary Use.

**Flight Advisory Service**—Advice and information provided by a facility to assist pilots in the safe conduct of flight and aircraft movement.

**Flight Plan**—Specified oral or written information about the intended flight of an aircraft that is filed with air traffic control.

**Flight Service Station (FSS)**—Air traffic Service facilities within the National Airspace System (NAS) which provide pre-flight pilot briefings and en route communications with VFR flights, assist lost IFR/VRF aircraft, assist aircraft having emergencies, relay Air Traffic Control clearances, originate, classify, and disseminate Notices to Airmen, broadcast aviation weather and NAS information, receive the close flight plans, monitor radio NAVAIDS, notify search and rescue units of missing VFR aircraft, and operate the national weather teletypewriter system. In addition, at selected locations, FSSs take weather observations, issue airport advisories, administer airmen written examinations, and advise Customs and Immigration of across-the-border flights.

**Flight Service**—The sum of flight plans originated and pilot briefs, multiplied by two, plus the number of aircraft contacted. See tables 2.6 and 2.14.

**Foreign Flag Air Carrier**—An air carrier other than a U.S. flag air carrier engaged in international air transportation (see also U.S. Flag Carrier).

**Foreign Mail**—Mail transported outside the United States by U.S. flag carrier for a foreign government.

**General Aviation**—That portion of civil aviation which encompasses all facets of aviation except air carriers.

**Glide Slope**—See Instrument Landing System.

**Heliport**—An area of land, water, or any structure used or intended to be used for the landing and takeoff of helicopters.

**Hub**—See Air Traffic Hub.

**IFR Aircraft Handled**—The number of IFR departures multiplied by two plus the number of IFR overs. This definition assumes that the number of departures (acceptances, extensions, and originations of IFR flight plans) is equal to the number of landings (IFR flight plans closed).

**IFR Departure**—An IFR departure includes IFR flights originating in center's area, accepted by the center under SOLE EN ROUTE clearance procedures, and extended by the center.

**IFR Over**—An IFR flight that originates outside the ARTCC area and passes through the area without landing.

**Inactive Aircraft**—All legally registered civil aircraft which flew hours.

**Instructional Flying**—See Primary Use.

**Instrument Approach**—An approach to an airport, with intent to land, by an aircraft flying in accordance with an IFR flight plan, when the visibility is less than 3 miles and/or when the ceiling is at or below the minimum initial altitude.

**Instrument Flight Rules (IFR)**—Rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan.

**Instrument Landing System (ILS)**—A precision instrument approach system which normally consists of the following electronic and visual aids:

—**Localizer**—Provides course guidance to the runway.

—**Glide Slope**—Provides vertical guidance during approach.

—**Marker Beacon**—Provides aural and/or visual identification of a specific position along an instrument approach landing.

**Instrument Operation**—An aircraft operation in accordance with an IFR flight plan or an operation where IFR separation between aircraft is provided by a terminal control facility or air route traffic control center.

**International Flight Service Station (IFSS)**—A central operations facility in the flight advisory system, staffed and equipped to control aeronautical point-to-point telecommunications, and air-ground telecommunications with pilots operating over international territory or waters, which provides flight plan following, weather information, search and rescue action, and other flight assistance operations.

**International Operations**—In general, operations outside the territory of the U.S., including operations between the U.S. and foreign countries, and the U.S. and its territories or possessions. Includes both the combination passenger/cargo carrier and the all-cargo carriers engaged in international and territorial operations.

**Itinerant Operation**—See Airport Operation.

**Jet Route**—A route designed to serve aircraft operations from 18,000 feet to 45,000 feet.

**Landing Rights Airports**—Any aircraft may land at one of these airports after securing prior permission to land from U.S. Customs.

**Large Air Traffic Hub**—See Air Traffic Hub.

**Large Regional Carrier**—See Carrier Groups.

**Large Certificated Air Carrier**—Carrier holding a certificate issued under section 401 of the Federal Aviation Act of 1958 and operating aircraft designed to have a maximum passenger seating capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds, or conducting international operations.

**Localizer**—See Instrument Landing System.

**Local Operation**—See Airport Operation.

**Long Range Navigation**—A method of navigation that permits navigation over long distances. This is in contrast to the relatively short range navigation provided by the VOR system.

**Major Carriers**—See Carrier Groups.

**Marker**—See Instrument Landing System.

**Medium Air Traffic Hub**—See Air Traffic Hub.

**Medium Regional Carrier**—See Carrier Groups.

**Microwave Landing System (MLS)**—An instrument landing system operating in the microwave spectrum which provides lateral and vertical guidance to aircraft having compatible avionics equipment.

**Mode C**—See Altitude Encoding.

**National Carriers**—See Carrier Groups.

**Nondirection Radio Beacon**—A radio beacon transmitting nondirectional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine headings to or from the radio beacon and “home” on a track to or from the station.

**Nonhub**—See Air Traffic Hub.

**Notice to Airmen**—A notice containing information concerning the establishment, condition or change in any component of, or hazard in the National Airspace System, the timely knowledge of which is essential to personnel concerned with flight operations.

**Other**—See Primary Use.

**Other Work Use**—See Primary Use.

**Over**—See IFR Over.

**Personal Flying**—See Primary Use.

**Pilot**—

—**Student Pilot**—A student pilot may not operate an aircraft that is carrying a passenger or that is carrying property for compensation or hire.

—**Private Pilot**—A private pilot may not act as a pilot-in-command of aircraft that is carrying passengers for compensation or hire nor may a private pilot act as pilot-in-command for compensation or hire.

—**Airline Transport Pilot**—An airline transport pilot may act as a pilot-in-command of an aircraft engaged in air carrier service.

**Pilot Briefing**—Information furnished a pilot to assist in flight planning. Principal items are weather conditions, notices to airmen, routes, and preparation and handling of the flight plan.

**Positive Control**—Control of all air traffic, within designated airspace, by air traffic control.

**Primary Use**—The use category in which an aircraft flew the most hours. The eleven use categories are defined below:

—**Aerial Application**—An use of an aircraft for work purposes which concerns the production of foods, fibers, and health control in which the aircraft is used in lieu of farm implements or ground vehicles for the particular task accomplished. This includes firefighting operations, the distribution of chemicals or seeds in agriculture, reforestation/ or insect control.

—**Aerial Observation**—Any use of an aircraft for aerial mapping/photography, survey, patrol, fish spotting, search and rescue, hunting, highway traffic advisory, or sightseeing; not include under Part 135.

—**Commuter Air Carrier**—An air taxi that performs at least five scheduled round trips per week between two or more points or carriers mail.

- Demand Air Taxi**—Use of an aircraft operating under Federal Aviation Regulations, Part 135, passenger and cargo operations, including charter and excluding commuter air carrier.
- Business Transportation**—Use of an aircraft not for compensation or hire by individuals for the purposes of transportation required by business in which they are engaged.
- Executive/Corporate Transportation**—Any use of an aircraft by a corporation, company, or other organization for the purposes of transporting its employees and/or property not for compensation or hire, and employing professional pilots for the operation of the aircraft.
- Instructional Flying**—Any use of an aircraft for the purpose of formal instruction with the flying instructor aboard, or with the maneuvers on the particular flight(s) specified by the flight instructor; excludes proficiency flying.
- Personal Flying**—Any use of an aircraft for personal purposes not associated with a business or profession, and not for hire. This includes maintenance of pilot proficiency.
- Rental Aircraft**—Aircraft owned for the purpose of renting; commercial flying club, leased, and rental aircraft activity.
- Other Work Use**—Any aircraft used for construction work (not included under Part 135), helicopter, hoist, towing gliders, or parachuting.
- Other**—Any other use of an aircraft not included above. (Example: experimentation, R&D; testing, demonstration, government).

**Private Pilot**—See Pilot.

**Private-Use Airport**—An airport which is not open for the use of the general public.

**Privately Owned Airport**—An airport which is owned by a private individual or corporation.

**Publicly Owned Airport**—An airport which is publicly owned and under control of a public agency.

**Public-Use Airport**—An airport open to for public use without prior permission, and without restrictions within the physical capacities of available facilities. May or may not be publicly owned.

**Radar Altimeter**—Aircraft instrument that makes use of the reflection of radio waves from the ground to determine the height of the aircraft above the surface.

**Registered Aircraft**—Aircraft registered with the Federal Aviation Administration.

**Rental Aircraft**—See Primary Use.

**RNAV**—See Area Navigation.

**Small Air Traffic Hub**—See Air Traffic Hub.

**Small Certificated Air Carrier**—Carrier holding a certificate issued under section 401 of the Federal Aviation Act of 1958 and operating aircraft designed to have a maximum seating capacity of 60 or less seat or a maximum payload of 18,000 pounds or less.

**Stolport**—An airport specifically designed for STOL (Short Take-off and Landing) aircraft, separate from conventional airport facilities.

**Student Pilot**—See Pilot.

**Supplemental Air Carrier**—See Air Carrier.

**Terminal Air**—A general term used to describe airspace in which approach control service or airport traffic control service is provided.

**Tower**—See Airport Traffic Control Tower.

**Transponder**—The airborne radar beacon receiver/transmitter portion of the Air Traffic Control Beacon System that automatically receives radio signals from interrogators on the ground and selectively replies with specific reply pulse-on-pulse group, only those interrogations being received on the mode to which it is set to respond. Each aircraft transponder is capable of replying to 4,096 codes as selected by the pilot. Provides the air traffic controller positive location and, in some cases, altitude information.

**U.S. Flag Carrier or American Flag Carrier**—One of a class of air carriers holding a Certificate of Public Convenience and Necessity issued by the DO, approved by the President, authorizing scheduled operations over specified routes between the United States (and/or its territories) and one or more foreign countries. (See also Foreign Flag Air Carrier).

**VFR Flight**—Flight conducted in accordance with Visual Flight Rules.

**VHF Communications**—Provides radio voice communications between aircraft and ground stations, also between aircraft. Very high Frequency (VHF) is limited in range (line of sight) and usually used for air traffic communications.

**VOR**—Very high frequency omnidirectional radio range. Used as the basis for navigation in the national Airspace System.

**VORTAC**—A navigation aid providing azimuth and distance measuring equipment as one site.

**Weather Radar**—Provide the flight crew with visual display of weather that could contain turbulence. The system's primary function is to assist in turbulence avoidance, although most airborne radar systems are also capable of terrain mapping.